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The
IRON AGE

NOVEMBER 4, 1948

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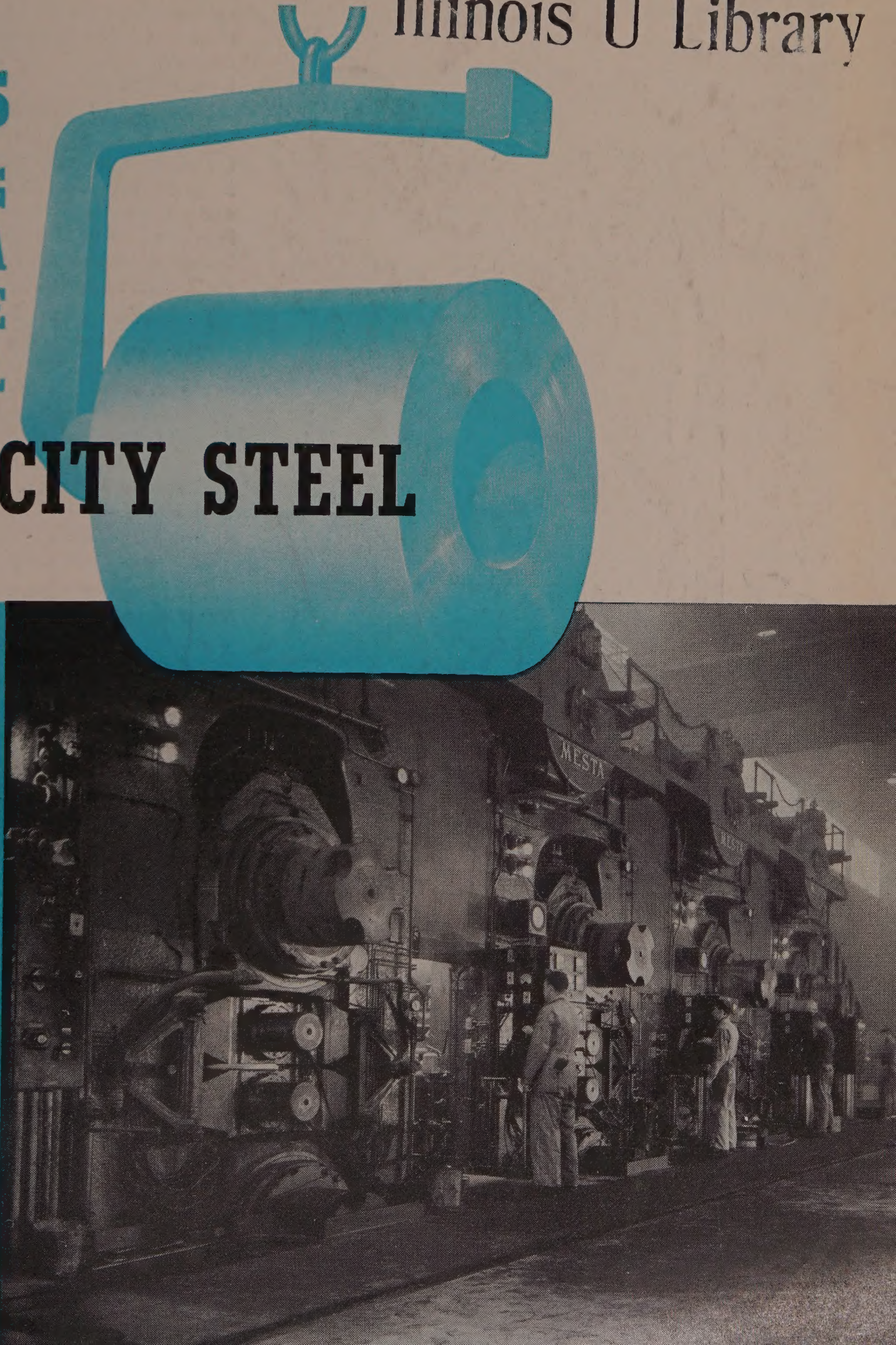


0 years
SERVING
LE AMERICA
WITH FINE
ALITY STEEL

ANITE CITY STEEL

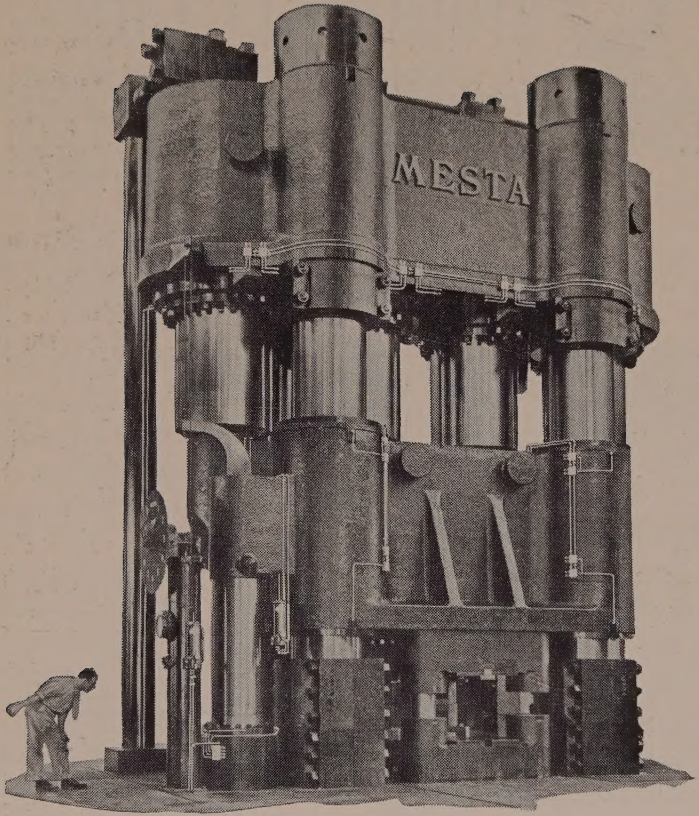
old Rolled Coils
Culvert Sheets
Seal of Quality
lvanized Roofing
rn Roofing and Siding
bricated Products
Dipped Tin Plate
ctrolytic Tin Plate
d Stainless-Clad Steel
ld Rolled Sheets
in Enameling Iron
ectrical Sheets
nsformer Sheets

SINCE
GRANITE CITY STEEL
1878

City Steel Company
anite City, Illinois

Kansas City • Memphis
polis • Moline • St. Louis
Oklahoma City

World's largest forging press is lubricated with 2 Farval systems



FARVAL—*Studies in Centralized Lubrication*
No. 107

THE builder of this 18,000-ton hydraulic die forging press made certain it would receive adequate lubrication by equipping it with two Farval systems. One serves 24 points of lubrication on the column guide bushings and plunger seat, the other serves 32 points on the gland rings of main and push back cylinders.

Hundreds of Farvalized presses are in use in forging and metal working shops. The benefits of Farval Centralized Lubrication are fourfold—oiling labor is saved, lubricant is saved, bearing expense saved and production time saved. In one plant, for example, installation of 133 Farval systems to serve 3100 bearings on metal-forming presses saved the labor of 11 oilers per day.

In another plant, Farval solved the problem of delivering oil regularly and adequately to the Pitman bearings of a large forging press, thereby ending frequent shutdowns for overhauls costing $3500 to $5000 each in parts and labor alone. In a third plant, five Farval-equipped dieing machines ran continuously for 10,000 hours, while alongside, 12 similar machines without Farval had to be shut down every four hours for hand oiling. Thus production was increased 14% on the Farval-equipped machines and maintenance was only ¼ as great.

Farval systems have served industry for over 20 years. Farval delivers oil or grease under pressure to a group of bearings from one central station, in exact quantities, as often as desired. It does its work while the machine is in operation. Farval—the Dualine System with the Positive Piston Displacement Valve—that has but 2 Moving Parts—is Fully Adjustable—and with a Tell-tale indicator at each bearing to show the job is done.

Write for Bulletin 25 for a full description of Farval. The Farval Corporation, 3252 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.

FARVAL

CENTRALIZED SYSTEMS OF LUBRICATION

THE IRON AGE, published every Thursday by the *CHILTON CO. (INC.)*, Chestnut and 56th St., Philadelphia 39, Pa. Entered as second class matter Nov. 8, 1932, at the Post Office at Philadelphia under act of March 3, 1879. $8 yearly in United States, its territories and Canada; other Western Hemisphere Countries $15; other Foreign Countries $20 per year. Single Copies 35¢. Annual Review Number, $2.00. Vol. 162, No. 19.

"BRAINS" of the leading Business Machines are made from J & L cold-finished JALCASE STEEL...

J&L STEEL

Monroe

Smith-Corona

National

CASH REGISTERS • ADDING MACHINES
ACCOUNTING MACHINES

IBM

Addressograph

TRADE-MARK REG U.S. PAT OFF

FRIDEN

ALLEN WALES

SPEEDS THE WORLD'S BUSINESS

UNDERWOOD

☆ MARCHANT ☆

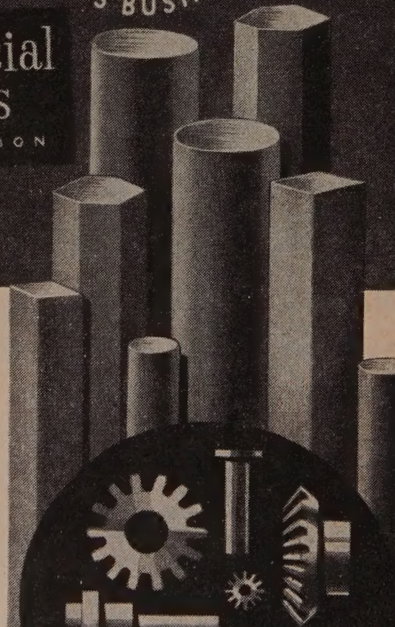
R.C. Allen BUSINESS MACHINES

Multigraph

TRADE-MARK REG U.S. PAT OFF

Commercial Controls
CORPORATION

Remington Rand



...the original, free-machining, cold-finished open-hearth steel... for better quality precision parts at lower cost.

Look inside a business machine of any leading make, and most likely you'll be looking at a mass of precision parts accurately machined from J&L cold-finished *Jalcase* Steel. To the uninitiated, the "brains" of these modern marvels appear like an insolvable maze, but every tiny gear, lever and cam has a definite job to do—a definite function to perform for rigid accuracy.

There are some sound business reasons why so many of these working parts are made from J&L *Jalcase* —the *original,* free-cutting, open-hearth steel:

- **Jalcase is the leading free-cutting steel—and has been for more than 25 years.**
- **It machines smoothly and easily at high speeds.**
- **It lengthens tool life and reduces the number of stops for re-tooling.**
- **It is easily and quickly heat treated.**
- **It has high wear resistance.**
- **Ten grades plus a number of special treatments offer the Jalcase user a wide range of desirable properties.**

If you machine steel in the manufacture of your products—investigate *Jalcase!*

We have just published a new brochure on cold-finished *Jalcase,* and shall be glad to send a copy to anyone interested in machining rod and bar stock. The coupon at the right is for your convenience.

JONES & LAUGHLIN STEEL CORPORATION

Jones & Laughlin Steel Corporation
403 Jones & Laughlin Building
Pittsburgh 30, Pennsylvania

Please send me your new brochure describing J&L cold-finished *Jalcase*—the original free-cutting, open-hearth steel.

NAME____________________

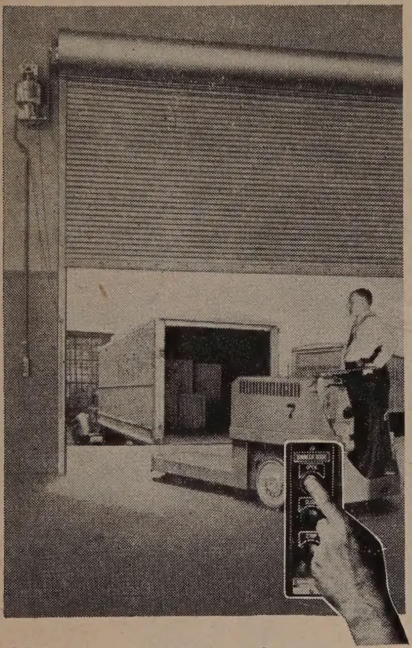
ADDRESS____________________

CITY____________ZONE________

STATE____________________

When Manpower *Waits . . .*

Losses pile up every time manpower is forced to lose productive minutes waiting for *doors* to be opened . . . standing by while traffic passes through . . . taking time to close them. You can easily stop these hidden profit leaks.



Manpower doesn't wait

when you install Kinnear Motor Operated Rolling Doors.

Push-button switches give you instant, complete, fingertip control of door action at all times, *from any number of convenient points.* It takes only a split-second of *manpower* to open or close the doors; the Kinnear Motor Operator does the rest, automatically.

You also save *space* with Kinnear Rolling Doors. They coil out of the way, safe from damage by wind or vehicle, into a small area overhead. No wall, floor or ceiling space, is used as they open or close. All-steel construction gives you extra, low-maintenance service, added protection against fire, storm, theft. Any size, for old or new buildings. Write for details.

The KINNEAR Manufacturing Co.
Factories: 1760-80 Fields Ave., Columbus 16, O.
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in all Principal Cities

Saving Ways in Doorways
KINNEAR
ROLLING DOORS

Fatigue Cracks

BY C. T. POST

All or Nothing

• • It looked like a four-alarm fire when a tip came in that the caption for Fig. 4, page 686, of the 1944 Minerals Yearbook read:

"Price is for No. 1 virgin 98-99 percent at New York through 1929."

Something was wrong somewhere. Our experts in the virginity department advised that while Ivory Soap could be 99.44 pct pure, virgins were a very different matter, even in the roaring twenties. Likewise, it would appear improbable that evil old New York could harbor 98 or 99 pct of the virgins at any time. And price! You expect these modern novels and the crimson press to be quite unblushing about vice and such, but not our dear old Uncle Sam's Minerals Yearbook.

Thank heavens it was a false alarm! The full caption reads: "Trend is average quoted price of aluminum, 1915-44. Price is for No. 1 virgin 98-99 percent at New York through 1929. Thereafter for 99-percent plus virgin ingot, as reported by American Metal Market."

Conciseness is a recognized journalistic virtue, but if Minerals Yearbook expects to be quoted in your favorite family journal, it's going to have to be more careful of its language from here on in.

Shocker

• • Your f.f.j.'s failure to solve the fractional h.p. motor shortage last year was entirely due to the tardiness of George Sullivan, the Pittsburgh headline maker, in running across a book called "The Dyer's Companion" which gives complete instruction on how "to make the most cheep and simple electric machine." In case, you need power to run the band saw in your basement workshop, you may still be interested:

> "Take a piece of plank 18 or 20 inches square, place two small posts at a distance that will take the length of a bottle that will hold perhaps a quart; the bottle must be round, and of flint glass (they may be had at the apothecaries for 3 s. or 3 s. 6 d). Put in a hard wooden stopple, at the other end stick on a piece of hard wood with any glutenous matter, such as shoemaker's wax or the like; make a small hole in the center of wood, and the stopple, to receive two Points which come thro' the posts; thus the bottle being hung in a rolling position, let a band go round the neck. and be conveyed to a wheel, 8 or 9 inches over, which turns with a crank. Then take an 8 ounce vial, coat it inside and out with tin foil; this may be stuck on with stiff glue, or candied oil; the vial must have a large nose, or it will be difficult to coat the inside; cork it tight, having a wire run through the middle of the cork with a common leaden bullet on the top; bind the wire so that the ball may come within half an inch of the cylinder or large bottle; place it in the center of the cylinder, then having a piece of deerskin leather sewed up and stuffed in the form of a pin cushion, having amalgam rubbed on one side, hold it to the cylinder opposite to the ball; put the machine in motion, and the fire will collect and fill the small vial. To take a shock, hold the vial where it is coated with one hand, touch the ball with the other. If a number of persons wish to take a shock at once, the person at one end of the circle holds the vial, whilst that on the other touches the ball; the vial must not be coated within one inch of the top."

The Dyer's Companion was published "in the thirtieth year of the Independence of the United States of America." The electric machine, forerunner of models that graced penny arcades for generations, was recommended for use where "a stagnation of the blood, or any kind of numbness has taken place; for sudden pain, etc. . . . It is sincerely wished that a physician or some other person would keep one in each town."

Sets Your Sites

• • In this week's issue of your f.f.j. (p. 238), as it has for many weeks, appears a modest advertisement for Mike Krasilovsky, moving man extraordinary. Mr. Krasilovsky moves factories. Some big plants, with heavy sensitive equipment, have been picked up bodily by Mr. K., moved hundreds of miles. He pads them carefully and sets them down as gently as though they were 18th century Limoges. Like most master craftsmen, Mr. K. is modest. His advertisement merely states, and repeats each week, that "WE MOVE FACTORIES ANYWHERES".

The plural termination, it seems, has been worrying Robert S. Aitchison, advertising manager for Lindberg Engineering Co., who writes:

> *"Horrors. Every week for months — perhaps years, the favorite family journal has appeared with a grammatical error. Somehow though, I think I like Mike Krasilovsky better with this ad as it is—and when I run into a spare factory I want to move, I'll certainly call him."*

Apparently Mr. Krasilovsky's message has caught the eye of others with factories to move. When we call him, he said not to change a letter of it. The grammatical error makes the ad jump out from the page, humanizes the service. Changing "anywheres" to "anywhere" would make it just another impersonal business card. The master mover knows his advertising psychology.

a thousand and one job-proved wire ropes

There's a Macwhyte rope that's the right rope for your equipment.

MACWHYTE WIRE R
PREformed
WHYTE STRAND

Macwhyte Wire Rope

Use PREformed Whyte Strand for easy handling and longer service.

Macwhyte Distributors and Mill Depots —carry stocks for immediate delivery. Macwhyte representatives will recommend the correct rope for your equipment. Catalog on request.

MACWHYTE COMPANY
2911 Fourteenth Avenue • Kenosha, Wisconsin
Manufacturers of Internally Lubricated Wire Rope,
Braided Wire Rope Slings, Aircraft Cables and Assemblies.
Mill Depots: New York • Pittsburgh • Chicago • Minneapolis
Fort Worth • Portland • Seattle • San Francisco • Los Angeles
Distributors throughout U. S. A. and other countries.

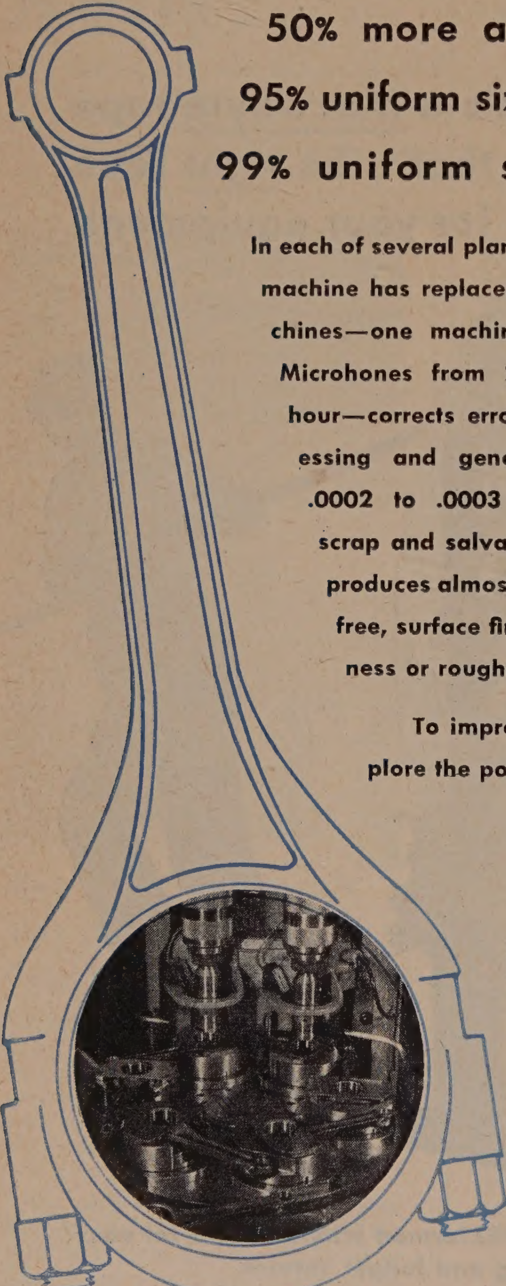
NO. 940

microhoned*

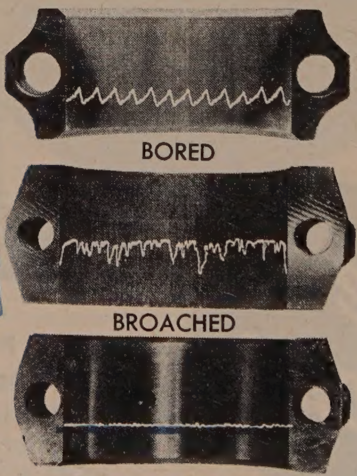
for: 20% to 40% more production
50% more accurate bearings
95% uniform size, fewer re-runs
99% uniform surface finish

In each of several plants, one microhoning machine has replaced three grinding machines—one machine and one operator Microhones from 250 to 400 rods per hour—corrects errors from previous processing and generates accuracy within .0002 to .0003 inch—reduces oversize scrap and salvage re-runs to within 5%—produces almost perfectly uniform, chatter-free, surface finish of any desired smoothness or roughness.

To improve your production, let's explore the possibilities now.



Six-station fixture for Microhoning two connecting rods simultaneously.



Comparison of Profilograph records of typical connecting rod machining operations.

* TRADEMARK REG. U. S. PAT. OFF.

MICROMATIC HONE CORPORATION
8100 SCHOOLCRAFT AVENUE, DETROIT 4, MICHIGAN

DISTRICT FIELD OFFICES:
1323 S. Santa Fe
Los Angeles 21
California

616 Empire Bldg.
206 S. Main St.
Rockford, Ill.

55 George St.
Brantford, Ont.
Canada

Micromold Manufacturing Div.
Boston Post Road
Guilford, Conn.

Dear Editor:

PHILADELPHIA PROBLEM

Sir:

In connection with a study of changes in productivity in the gray iron foundry industry in Eastern Pennsylvania, I planned to make use of the average prices of pig iron, scrap and coke as published in the Annual Review numbers of THE IRON AGE. I have found pig iron and coke prices for the period from 1924 through 1947, but am having difficulty with the scrap prices. "Philadelphia, No. 1 Machinery Cast" seemed to be the most appropriate grade in the years through 1940. This grade was apparently discontinued at the close of that year. It seems to have been resumed in the weekly presentation of prices in 1948. Can the figures for the intervening years be made available to me, or is there some other series which would be more representative of the costs of raw materials in this area?

MIRIAM HUSSEY
Research Associate
University of Pennsylvania, Wharton School of Finance and Commerce
Philadelphia

● Determination of comparative foundry scrap price levels through the war years will require a certain amount of interpolation on your part since the establishment of government controls in April, 1941, put prices on a shipping point basis rather than the delivered basis which had previously been in practice. You can use the quotation for "No. 1 Cupola" for your purposes in the interval when "No. 1 Machinery" was not quoted. Probably the "No. 1 Cast, Philadelphia" prices shown on the Comparison of Prices page in the weekly issues will give you the best possible continuity of prewar quotations. This is the shipping point price. We know of no way in which you can exactly compute an average delivered price for the area, although you may be able to make a reasonable approximation. The names of brokers, thoroughly familiar with the past and present Eastern Pennsylvania market, who may be able to offer you suggestions are being sent.—Ed.

MANAGEMENT GIMMICKS

Sir:

Will you please advise whether your book "Practical Management" is available and at what price it can be purchased.

H. T. KESSLER
Executive Vice President
Tuthill Pump Co.
Chicago

● The book is still available. Copies are $3.00.—Ed.

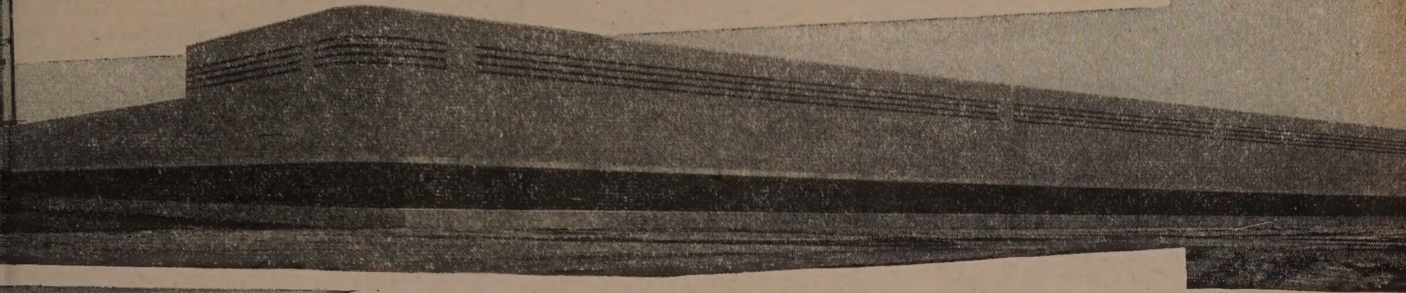
FOUNDRY LADLES

Sir:

If you have advertisers making drop-forged steel ladles for handling babbitt, lead, aluminum, etc., in 6, 8

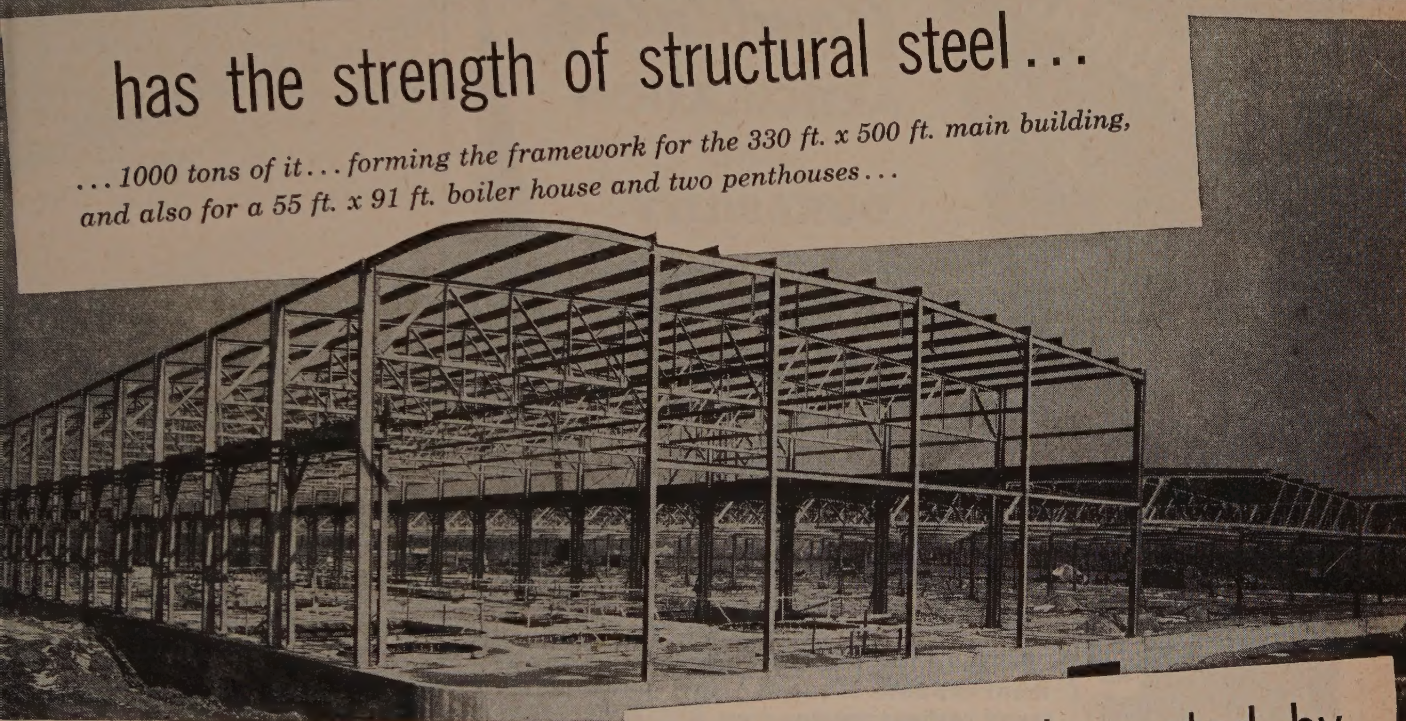
This modern, good looking mill building...

built for the Moraine Paper Co. Division of The American Envelope Co. at West Carrollton, O., and designed by the office of W. Ray Yount, Architect & Engineer



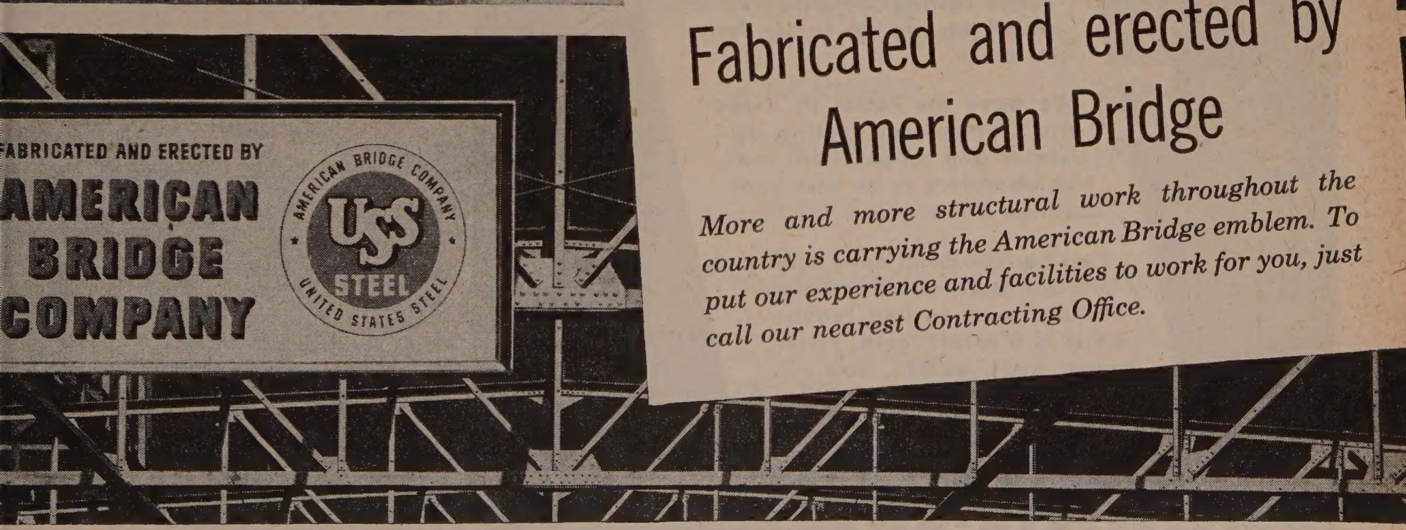
has the strength of structural steel...

...1000 tons of it...forming the framework for the 330 ft. x 500 ft. main building, and also for a 55 ft. x 91 ft. boiler house and two penthouses...



Fabricated and erected by American Bridge

More and more structural work throughout the country is carrying the American Bridge emblem. To put our experience and facilities to work for you, just call our nearest Contracting Office.


ABRICATED AND ERECTED BY
AMERICAN
BRIDGE
COMPANY
AMERICAN BRIDGE COMPANY
USS
STEEL
UNITED STATES STEEL

AMERICAN BRIDGE COMPANY

General Offices: Frick Building, Pittsburgh, Pa.

Contracting Offices in: Baltimore · Boston · Chicago · Cincinnati · Cleveland · Denver · Detroit
Duluth · Minneapolis · New York · Philadelphia · St. Louis
Columbia Steel Company, San Francisco, *Pacific Coast Distributors*
United States Steel Export Company, New York

UNITED STATES STEEL

DURALINK BELT

Combining

ARTICULATION
and
DURABILITY

It was quite a casting job . . . and an assembly job . . . to make this high alloy belt for a continuous heat treating furnace. But it's typical of the work we are in a position to handle.

1 We have metallurgists capable of designing special equipment to meet conditions of corrosion, high temperature or abrasion and to select the proper alloying elements.

2 We have the foundry equipment capable of turning out sound castings ranging from a pound or two up to six tons per piece.

3 We have the latest in X-ray and Gamma-ray testing apparatus and an excellent control laboratory to be sure your castings are sound.

Possibly you don't need a continuous belt, as illustrated. Perhaps your casting requirement is a retort, grid, roller, pump part, kettle, cap . . . whichever it is, we would like to take care of it for you.

Do you have our General Catalog 4729-G? If not send for a copy.

THE DURALOY COMPANY

Office and Plant: Scottdale, Pa. • *Eastern Office:* 12 East 41st Street, New York 17, N. Y.

Los Angeles & San Francisco
KILSBY & HARMON

F. O. NELSON
743 McCormick Building
Chicago, Illinois

Detroit:
F. B. CORNELL & ASSOCIATES

METAL GOODS CORP.: St. Louis • Houston • Dallas • Tulsa • New Orleans • Kansas City

and 10 in. diam, flat handle, loop grip types, with weight of the 10 in. ladle to be about 13 lb, we would appreciate your giving us their names or forwarding our inquiry as to price in lots of 50 to 100 pieces of a size.

C. D. YOUNG

Wolverine Foundry Supply Co.
Detroit

● Most ladles for nonferrous metals of the sizes you mention are either cast or pressed steel, welded and riveted, since strength is not a factor. However, a list of manufacturers of forged ladles as well as a list of makers of ladles of these sizes, not of forged steel, have been sent.—Ed.

WELDING DISSIMILAR METALS

Sir:

Our laboratory was very much interested in the article, "Welding Dissimilar Metals with Stainless Electrodes," which was carried in the July 1 issue, and we would greatly appreciate having two copies of the article.

W. H. WYNNE
Research Analyst

Rohr Aircraft Corp.
Chula Vista, Calif.

CASTING MACHINE

Sir:

We are in the market for a machine to cast high speed steel blanks in small diameters. Is there such a unit on the market? And if so, would you please furnish the name of the manufacturer.

CHAS. MEISSNER
Superintendent

Woodworkers' Tool Works
Chicago

● The name of a company making centrifugal casting machines which are probably suitable for your purpose is on its way.—Ed.

THREAD ROLLING

Sir:

We would appreciate your forwarding to us a reprint of the article "Thread Rolling—Theory and Practice" from the Dec. 19 and 26, 1946, issues. We are enclosing a check for $1.00 covering the cost of this reprint.

H. M. FISKE
Purchasing Agent

Southington Hdwe. Mfg. Co.
Southington, Conn.

SCRAP INFO

Sir:

Would appreciate being provided with tear sheets on the subject of purchase of scrap for openhearth and electric furnace melting, determination methods as to content of scrap, and in general, any publications on the subject.

GEORGE OBER
Div. of Vessel Disposal

U. S. Maritime Commission
Washington

● Tear sheets of articles on identification, segregation and preparation of scrap have

IT'S HARPER

11 TO 1
HARPER'S 25th Anniversary
HARPER

11 REASONS FOR USING HARPER EVERLASTING FASTENINGS

1 RESISTANCE TO RUST AND CORROSION
2 RESISTANCE TO HIGH TEMPERATURES
3 NON-MAGNETIC
4 NON-SPARKING
5 RE-USEABLE
6 ATTRACTIVE APPEARANCE
7 EASY TO CLEAN
8 HIGH STRENGTH
9 LONG LIFE
10 LOWER ULTIMATE COST
11 RESISTANCE TO FATIGUE

Only 1 for Common Steel—**LOWER FIRST COST**

—An amazing combination of advantages in favor of non-ferrous and stainless steel bolt and nut products.

PROMPT SHIPMENT FROM STOCK . . . Harper maintains stocks of over 5,000 individual items in Chicago and New York . . . large quantities of each. Others being added constantly. Specials made to order from ample stocks of raw materials.

Write for Catalog

THE H. M. HARPER COMPANY
MORTON GROVE, ILLINOIS
(SUBURB OF CHICAGO)
NEW YORK 13 • 200 HUDSON STREET

BRANCH OFFICES: Atlanta, Cambridge, Cincinnati, Cleveland, Dallas, Denver, Detroit, Grand Rapids, Los Angeles, Milwaukee, Philadelphia, St. Louis, San Francisco, Seattle, Toronto (Canada)

NOW your alloy castings
will be better because
Firth-Vickers and Lebanon
have joined forces
FV
L

Corrosion and heat-resistant alloy steel castings of certain types acquire better characteristics when made by the Centri-die process in permanent molds. This method was developed by Firth-Vickers of Sheffield, England, over a long period of experimentation. It is largely responsible for the superior qualities of the Rolls-Royce, De Havilland, Bristol and other British airplane jet engines. Since the war it has been widely applied to castings for corrosion and heat-resistant service.

The agreement between Lebanon and Firth-Vickers makes available to us the best experience, methods and foundry practices known in England and assures Lebanon's customers a continuance of our traditional high-quality standards.

If your equipment is subjected to high temperatures or corrosive conditions, you should know about the new Lebanon castings made by the Centri-die process in permanent molds.

Get This Book
"Centri-die Centrifugal Castings"

Here is a clear explanation of the practical advantages to you of the Firth-Vickers Centri-die method of making alloy castings centrifugally in permanent molds. Of interest to executives and engineers who want to keep abreast of new manufacturing and production methods. Write for Bulletin F.

LEBANON STEEL FOUNDRY • LEBANON, PA.
"In The Lebanon Valley"

LEBANON Castings
ALLOY AND STEEL
CIRCLE L

been sent. Prices and market reports are available in each week's issues. Also, you would probably find two publications of the Institute of Scrap Iron & Steel, Washington, helpful. These are "The Story of Scrap" and the Institute's 1948 yearbook which gives the most recent definitions of the various scrap grades.—Ed.

POWDER METALLURGY

Sir:

Will you kindly forward copies of the following articles from your April 8 issue: "Powder Metallurgy — Its Current Problems and Prospects," "Powder Metallurgy as Applied to Permanent Magnets" and "Powder Metallurgy; Low Cost Equipment for Volume Production."

J. A. WILSON
J. A. Wilson Metal Products Co.
New York

FASTENERS AND DESIGN

Sir:

I would appreciate receipt of a copy of the article "Effective Use of Fasteners in Product Design" appearing in the Sept. 23 issue.

IRVING D. GESSNER
Materials Engineer
Bureau of Ships, Navy Dept.
Washington

OPERATING RATES

Sir:

Will you be good enough to furnish me with the lowest and highest percentages of operation for the steel industry in 1942?

S. SCHENKEL
New York

● A tear sheet from the Jan. 1, 1948 issue showing the monthly operating rates from 1929 through 1947 has been mailed.—Ed.

TO THE RESCUE

Sir:

I have seen in THE IRON AGE and other publications articles on scrap shortages and advertisements urging scrap collections. Has anybody suggested that the Boy Scouts of America might be of considerable assistance in getting some scrap? These lads, as you know, are supposed to do a good turn daily, and secondly they are always anxious to earn a little money for their troops. There are something like 2 million boys in this organization, and I am sure that the tonnage they could find would reach a very respectable figure. I used to do it when I was a boy and made quite a lot of money on my Saturday collections.

H. T. KENNEDY
President
H. T. Kennedy Co., Inc.
New York

● It's an idea. The great difficulty with neighborhood scrap drives, which were a comparable effort during the war, was that much of the material turned up was not

Another LATROBE *first!*

. . . Introducing a new group of
DESEGATIZED BRAND
steels!
ELECTRITE MV
intermediate alloy
HIGH SPEED STEELS
LATROBE
DESEGATIZED
BRAND OF DISPERSED SEGREGATE
HIGH SPEED STEELS

Designed for Intermediate Service

. . . where the full properties of the more costly higher alloy high speed steels are not required!

This new **ELECTRITE MV** family of high speed steels is the product of years of research by Latrobe Electric Steel Co. metallurgists. Developed specifically to fill the need for Intermediate Alloy High Speed Steels, the MV family is suitable for uses where higher alloys are not required.

The introduction of these new steels marks another step forward in Latrobe's continuing efforts to produce for Industry better steels for better tools at lower cost.

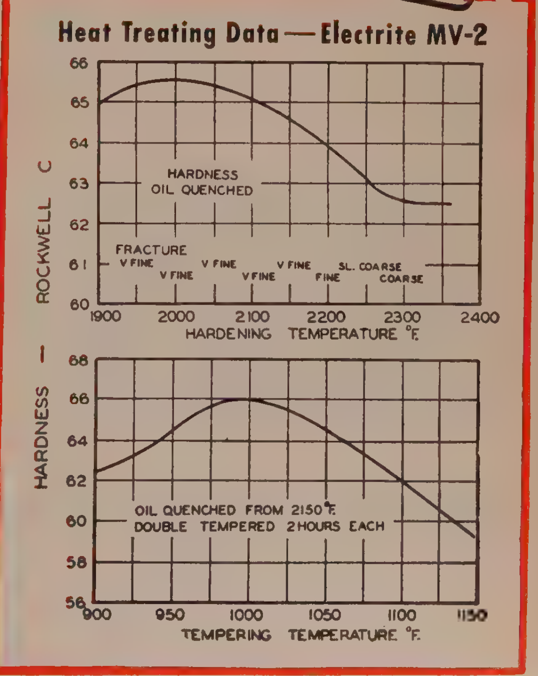
These intermediate high speed steels are recommended for small drills and reamers, thread chasers, taps, pipe taps, etc., wood-working knives and cutters and for body stock for carbide-tipped drills and reamers. Our sales engineers will be glad to assist you in selecting the proper grade for your particular applications.

LATROBE ELECTRIC STEEL CO., Latrobe, Pa.

TYPICAL ANALYSES		C	Cr	Mo	Va
	MV-1	.80	4.10	4.25	1.10
	MV-2	.85	4.10	4.25	2.00
	MV-3	1.10	4.10	4.25	3.15
	MV-4	1.40	4.10	4.25	4.15

Shown at right are hardening and tempering curves of MV-2 grade.

Heat Treating Data — Electrite MV-2



–it's from HERE

to HERE

● It's an easy matter to define the "comfort zone" in a plant. It's that eight or ten feet above the floor that must be heated for employee comfort. But it's quite another matter to heat it economically and effectively when thirty feet of air space extend above it to the roof.

Such a problem faced the Minweld Steel Company in its new fabricating plant in Pittsburgh—and a Dravo *Counterflo* Heater solved it for them.

This powerful unit discharges warm air above the heads of the workers, circulates it through the working area, and returns it without drafts to the base of the heater for reheating and recirculating. This method maintains uniform heat throughout the 6,500 square foot working area—even though two 19-foot square truck doors open at each end, and metal-siding walls are broken by an abundance of windows.

Installation of the self-contained Dravo *Counterflo* Heater required only a fuel line, a power line and a small venting stack—no boiler room or piping. Ductwork, too, is unnecessary because capacity is ample to blanket a radius of 250 feet completely and *evenly* with warm air. The unit is entirely automatic . . . it is shut off at night—and at 6 A.M. the watchman simply flips a switch and the plant is warm fifteen minutes later.

Bulletin IS-516 contains valuable information about the Dravo *Counterflo* Heater which you can apply to your own heating problems. Write for it, Heating Section, Dravo Corporation, Dravo Building, Pittsburgh 22, Pa.

In a fabricating plant such as Minweld Steel Company, man-hours and efficiency are vitally important. "In a recent two week period," Owner William Minnotte says, "we estimated a saving of twenty man-hours because our men didn't have to stop work and try to get warm around old-fashioned coal stoves. Increased productivity, of course, is also tied to the increased comfort of our employees."

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suitable for melting, usually being too light, excessively rusted or having a coated or plated surface. Also sorting and preparation of light material in many cases becomes uneconomical. However, if the boys could break any scrap loose from industrial plants, that would be something else again.—Ed.

METAL FINISHING MANUAL

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Sir:

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RIVETING MACHINE

Sir:

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Lancia & C.
Torino, Italy

● There are several machines on the American market similar to the one you describe. Names and addresses of the manufacturers have been sent.—Ed.

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Latrobe Electric Steel Co.
Detroit

● In quantities of 6 or more, the directories are $1.00 each.—Ed.

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Sir:

Would you kindly send me two copies of the articles "Properties of Copper Brazed Joints" and "Welding Copper Motor Connections." Both appeared in the Sept. 30 issue.

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The
IRON AGE

Vol. 162, No. 19 November 4, 1948

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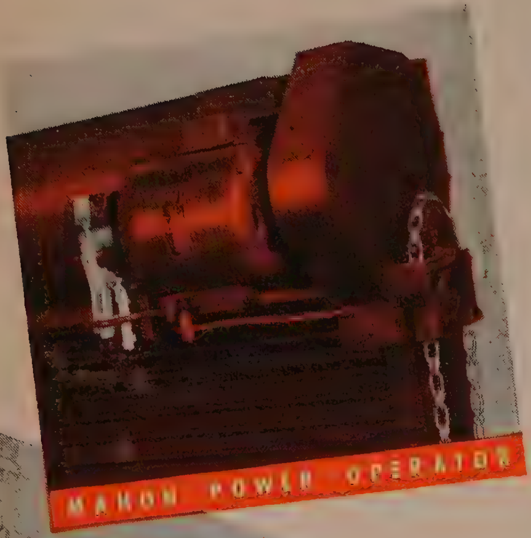
Rolling Steel DOORS

Manually • Mechanically • Power Operated



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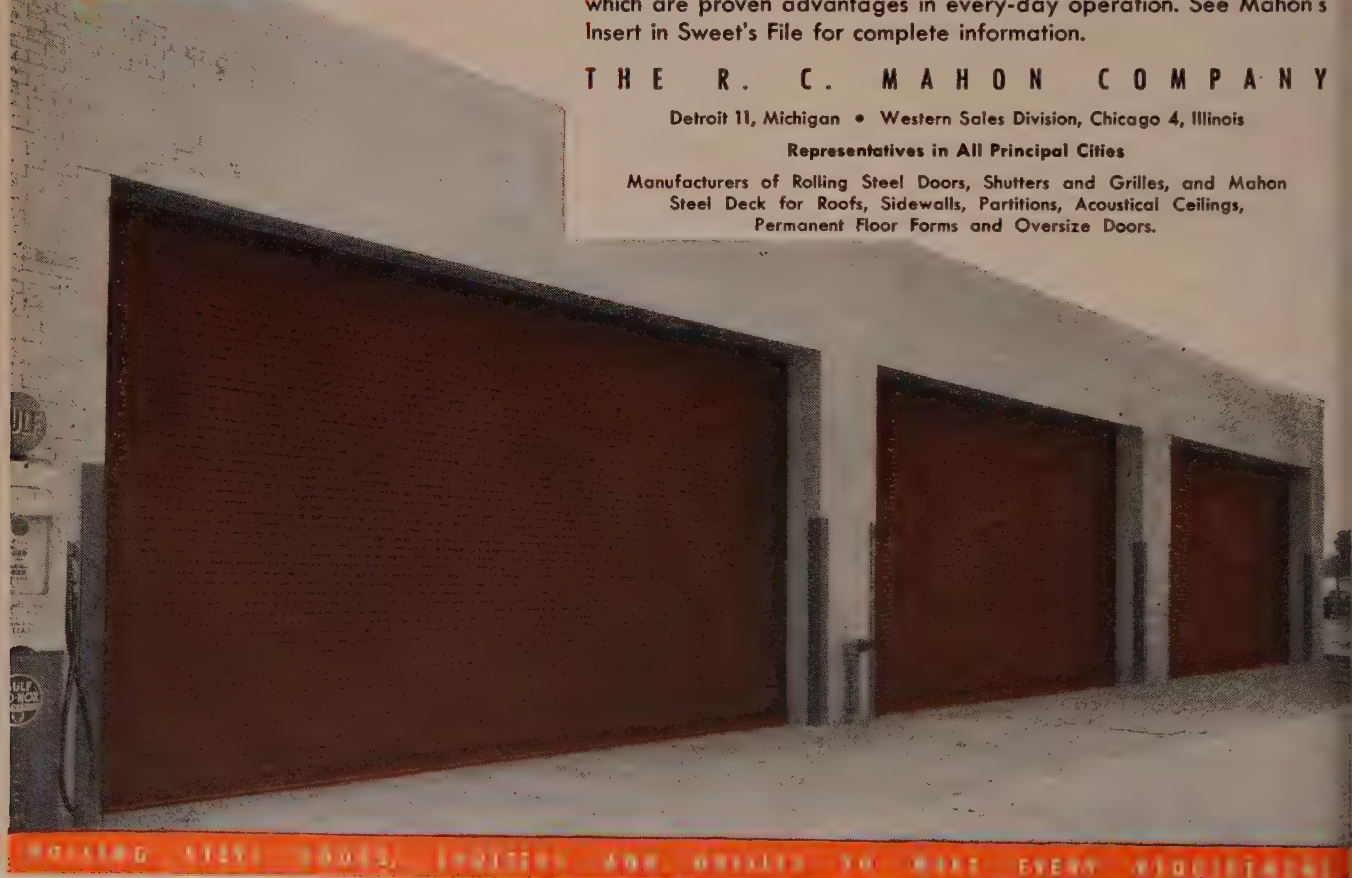
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MAHON

The IRON AGE

100 E. 42nd ST., NEW YORK 17, N. Y.
ESTABLISHED 1855

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November 4, 1948

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Limited Virtue

AMONG the errors of those who defend a free society is the failure to explain and justify the limitations of those institutions which make such a society possible. Socialism and communism are blueprints of alternative systems whose advocates claim absolute perfection. We have never heard a Socialist or a Communist concede any flaws in their Utopias. Capitalism does not present an earthly Paradise but by comparison with other systems its end results in the form of personal freedom, material progress and high living standards are incomparably superior. We believe that one of the institutions which has contributed substantially to this better performance has been the gold standard. Yet some of those who best understand it are inclined to apologize for its limitations; still others accept the pale and fraudulent substitute which now functions in this country.

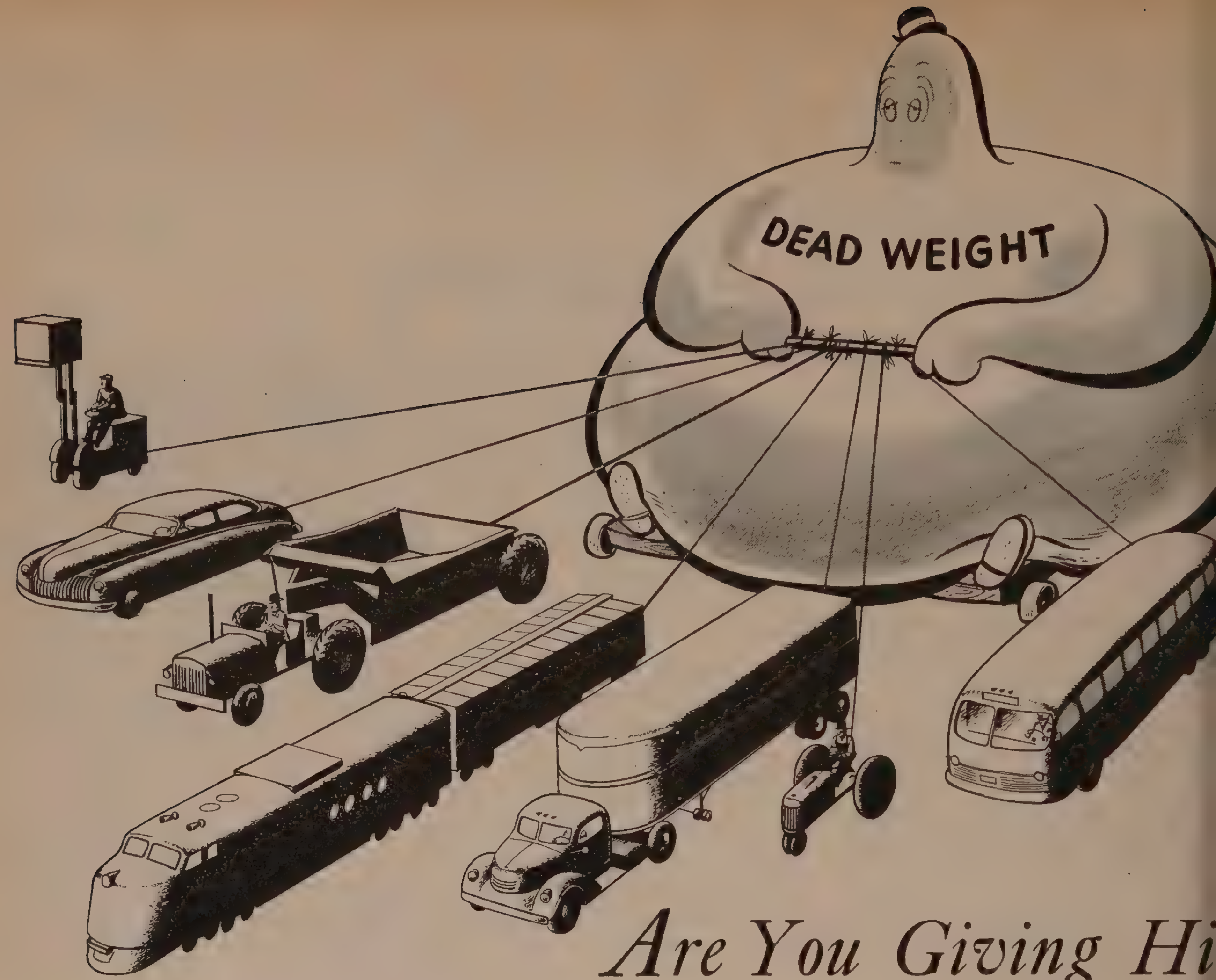
R. C. Leffingwell, the Chairman of J. P. Morgan & Co. and Assistant Secretary of the Treasury during World War I, has written an excellent article on inflation which appeared in the October issue of *Fortune*. With much that he says we can agree heartily. However, he opposes the return of gold circulation on the ground that this is not necessary since the country already has "a very good sound gold standard currency today." He then proceeds to say: "Gold circulation never gave immunity from booms and busts."

In the first place, we doubt that the presence of a quantity of gold, however enormous, "in a hole in the ground" at Fort Knox establishes this country on a gold standard. Gold can be the basis of a currency only if permitted to function actively in that role. This means the right of an individual who has folding money to convert it freely into gold at any time, in any amount, and to hold it in any form he pleases without running the risk of a heavy fine or a jail sentence—as is now the case. How can gold be a measuring stick for values if its use for that purpose is precisely forbidden by law?

In the second place, the gold standard has never been presented by careful students as an unfailing specific against "booms and busts." The record contains many instances of rather extreme price and business fluctuations while the country was on an authentic yellow metal standard.

The virtue of gold as a monetary unit lies in the limit it places on the infinite issue of credit and currency. As long as the saffron-hued bullion is used as a real measuring rod for values, Congress cannot authorize chronic deficits and the Federal debt cannot be expanded indefinitely. The administration cannot use inflationary emissions to raise the living standards of Zulus or purchase the adherence of large voter groups. A real gold standard—in contrast to the present diffident shadow—does a real job in a free society. Let's not ask too much of it.

Joseph Stagg Lawrence



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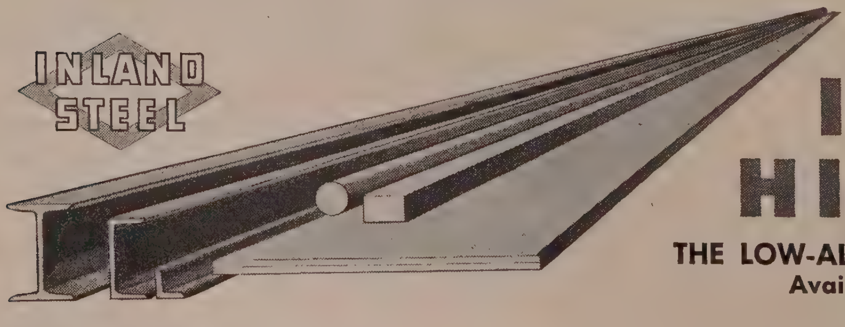

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The IRON AGE
November 2, 1948

NEWSFRONT

► Some industrial officials are claiming that the current high tax rates have hem behind the proverbial eight-ball. A moderate recession would put them into xtraordinary difficulties because of high break-even points. On the other hand, continuing boom will result in painful searching for cash in the form of bank oans to sustain the expanded volume. Some of them insist that you just can't win nder the present tax setup.

► Republic Steel has made a $1 million investment that over a period of time ill pay big dividends. They have installed a high-pressure blower system in one of heir blast furnaces that will increase the furnaces output by 20 pct. Previously ated at a 900 ton capacity, the furnace will now yield over 1000 tons a day.

► According to reports in upper Quebec, Bethlehem Steel's geologist has been ooking over the Quebec-Labrador iron ore deposits. It was just a friendly visit.

► Formed stainless steel tubing is gaining popularity. Stainless strip for ight construction is also being formed instead of welded. Hand rails, luggage acks and shower curtain rods are some of the applications already recorded.

► Great Lakes Steel Corp. has notified Detroit customers that any sheet and trip gages heavier than 18 gage will be furnished only in the hot-rolled condi-ion. Cold-rolled products are thereby restricted from this mill on gages 18 and ighter.

► Washington may try to put a soft pedal on domestic scrap drives right now. heory is that if no strong efforts are made to get out-of-the-way scrap, it will ccumulate in small quantities and furnish a hidden reserve for use in time of ar.

► A multiple tool turning, facing and chamfering operation on a forged rear xle is being performed at a speed of 830 surface ft per min, using round, tri-ngular and square inserted carbide tools. The part has a 6 in. diam flange on ne end that must be perpendicular within 0.005 in. with a spline on the other nd of the axle.

► There's one small company that is not griping about business falling off in he near future and about not being able to get sheets. That's the Cole Steel quipment Co. They claim that they can fill only 80 pct of the orders on their ooks over the next 6 months. Furthermore, they feel that steel producers have one a great job and are doing everything thay can to distribute fairly the much eeded sheet steel.

► Conversion goes abroad. Bizone Germany will receive 800,000 tons of iron ore rom France and French North Africa next year under an agreement between French ron ore mines and the Bizone Iron and Steel Office in Dusseldorf. In exchange, rance will receive 18,000 tons of cast iron, 24,000 tons of pig iron, plus 2000 ons of finished rolled products. The deal has been sanctioned by JEIA.

► At least two Canadian exploration companies have concessions in Quebec, north f the Hollinger iron ore fields. The future of these concessions will rest on he success of the Hollinger development over the next several years after inancial arrangements are made and the railroad constructed.

► A mobile, oily, nonflamable type fluid for use as a new pressure transfer edium for aircraft hydraulic systems has been developed. It will be used in abin superchargers, expansion turbines for air conditioning systems and for the ydraulic system itself in all types of aircraft.

► The strikes in France are having far-reaching effects on the country's omestic economy. The iron and steelworkers who have gone back on the job got a 5 pct boost in pay. But prices of most industrial materials were hiked from 15 o 25 pct and new rates of exchange were fixed for the franc. The dollar now rings 264 francs which is midway between the official rate of 214 and the free ate of 313. All commercial operations will be rated at 264 francs, the official ate being used only to determine the average rate if the free rate is changing n value.

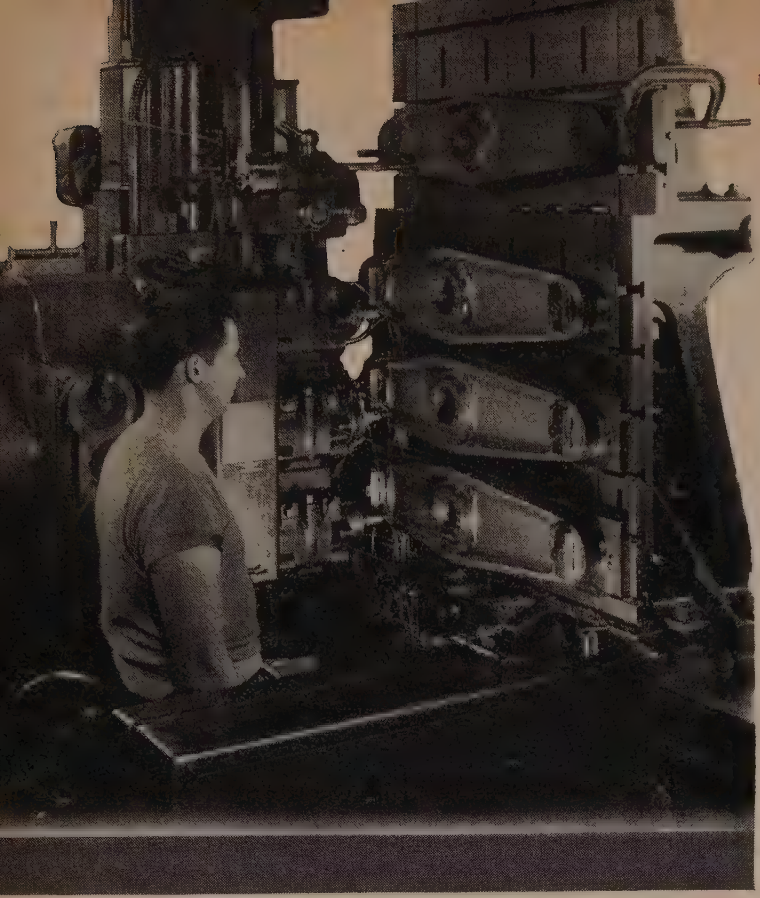


FIG. 1—Working from the template shown in the top of the fixture, three parts are machined simultaneously on this 3-spindle BL Keller machine. Prior to milling the web section of this part, it was profiled by this machine. This machine is equipped with a right and left-hand fixture.

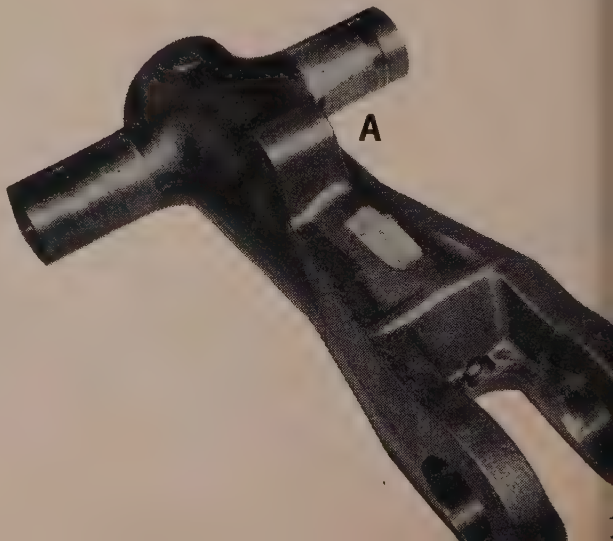
Kellering Speeds Part Duplication

By WALTER G. PATTON
Detroit Regional Editor,
THE IRON AGE

IN the face of the increasing national armament program for which will be developed many prototypes of fighting equipment, there is an increasing need for short run production of experimental parts. It has been found that experimental or even limited numbers of production parts can be made faster and at lower cost through the use of Keller machines than by casting or forging with their necessary patterns and dies. The Keller machine, basically a duplicating milling machine, is the basis for a plant established about 4 years ago in Detroit, the Detroit Kellering Co., wherein the entire production of the plant is devoted to jobs done on this type machine.

Producers of aircraft parts, machine tools, automobile bodies, and tools and dies have utilized the company's facilities. In the plant are four BG-1 Keller machines, two 3-spindle BL's with right and left fixtures and 10-in. centers on the spindles; and one BG-2 machine that will handle work up to 15 tons. The plant operates two shifts a day and employs 14 operators. The best known use of the Keller machines is in the production of automotive stamping dies, although less than 10 pct of the company's orders involve die work.

Typical of the work done by Detroit Kellering Co. are several landing gear parts for the B-36 bomber. In a 3-spindle BL machine, shown in fig. 1, the outlines of the three parts were first profiled, copying the outline of the wooden pattern shown at the top of the fixture. The three-dimensional tracer is shown in the illustration following the surface of the web, cutting vertically and feeding horizontally. After completion of the machining on the web, the center hub is shaped with the cutter moving horizontally and feeding vertically.



For making limited numbers of parts, especially of intricate shape, and for making experimental parts without expensive pattern or die costs, it has been found that Kellering has much to offer from the standpoints of speed and cost. Detroit Kellering Co., the only plant in the country devoting its entire production facilities to Kellering, has produced many aircraft, auto, machine tool, and tool and die shop parts. Typical jobs and setups are described in this article.

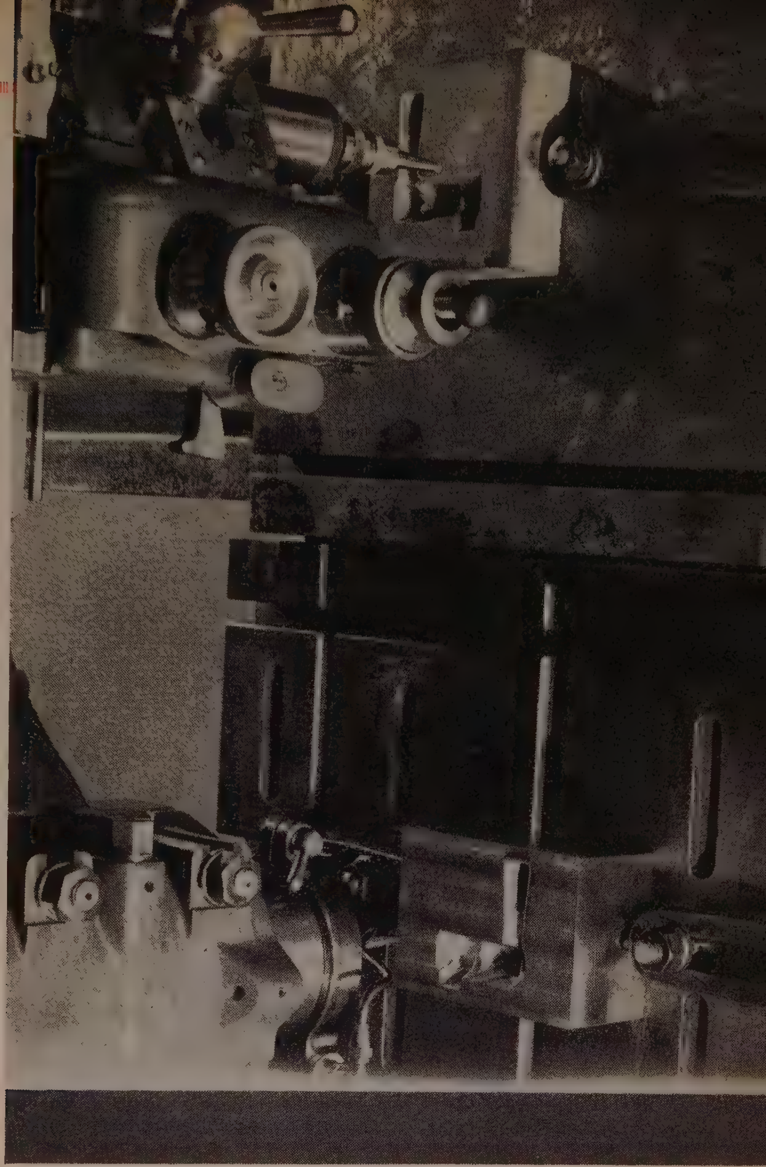
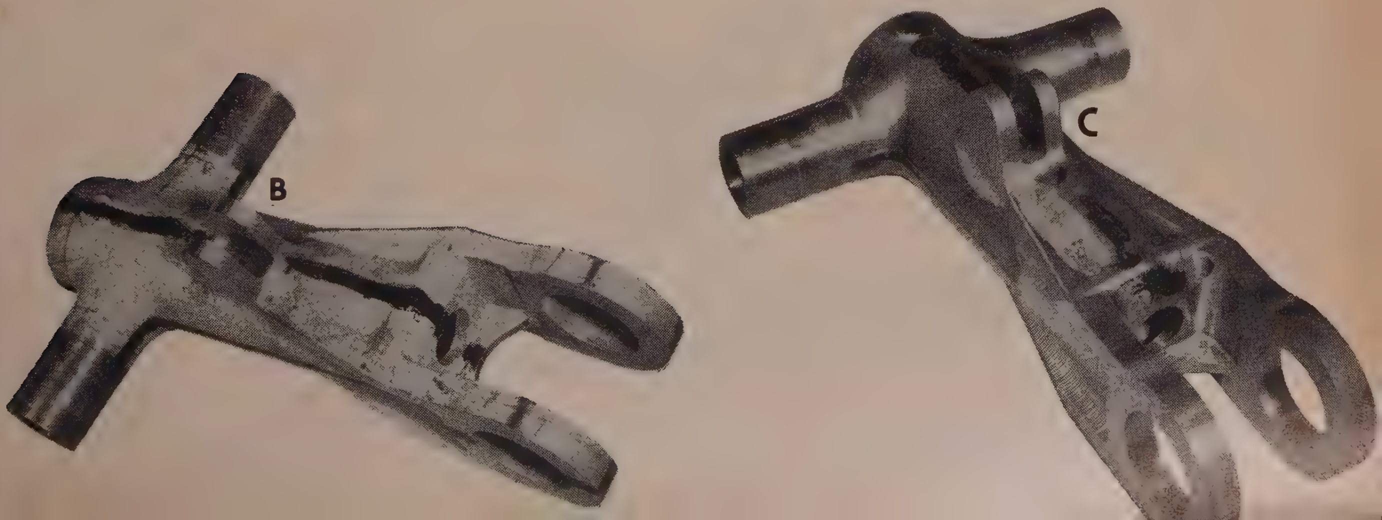


FIG. 2—Typical of the method of using the right and left-hand fixture is this operation of machining a left-hand die block from a right-hand model. The model is in the top of the fixture and moves in the direction opposite to the cutter in this type of work.

This particular machine is equipped with a right and left fixture that permits either duplication of a model or the production of a left-hand piece from a right-hand model. This is accomplished by the attachment of a movable plate to the top of the work-holding fixture that feeds in a direction opposite to that in which the cut is taken. An example of producing a left-hand part from a right-hand fixture is shown in fig. 2.

The sequence and setup of reproducing an axle for a heavy bomber are shown in figs. 3 through 5. The master pattern for part of the operation is steel and for the remainder is wood. Forgings of nickel-chromium-molybdenum steel, shown in

FIG. 3—A nickel-chromium-molybdenum steel forging with some machining operations completed is shown at *A* ready for the Keller machine. At *B* is the model from which some of the machining operations on *A* were done. The finished part, a bomber axle, is shown at C. The areas machined are the sides, the vertical lug both inside and out, and the inside area of the fork.



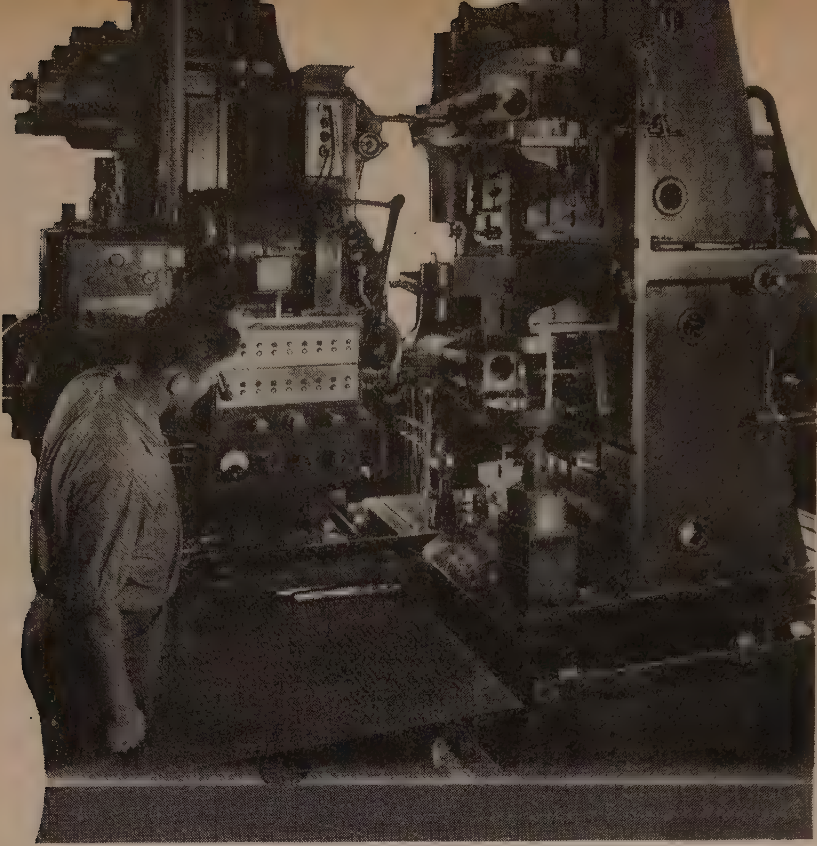


FIG. 4—The first operation of Kellering the axle is to drill the construction point and machine the lug. The forked end is also completely machined. In this illustration the radius in the lug is being completed.

fig. 3A, are received with some drilling and turning operations completed. Except for finish grinding, the final shaping of the parts is performed in the Keller machines.

The first operation in Kellering this part, as shown in fig. 4, consists of drilling a construction point, profiling the forked ends and the lug at the side of the parts. The lug has a substantial radius and must be held to close limits. The removal of excess weight from the sides of the forging, as shown in fig. 5, is another operation requiring a resetting of the part in the fixture. This area is roughed out with a 2½-in. cutter, allowing ⅛ in. on the surface for ball nosing. This operation is performed on both sides of the forging.

Fig. 3B offers a comparison of the original steel model with the finished part, fig. 3C, as it comes off the Keller machine. The extensive removal of stock is evident when the part is compared with the rough forging shown in fig. 3A. Specifications on this part call for holding the inside and outside dimensions to 0.010 in., and the overall weight of the 400 lb forging is reduced by about 50 lb in the machining process. As shown in the finished part in fig. 3C, the Kellering operation is not a finishing operation. The part is later finish ground after the true dimensions are established by the machining. Ordinarily, washing out the low points of the Keller cut by grinding brings the part to finish dimensional size, so that in this machining operation machining accuracies are important.

Another part machined in Keller machines is shown in fig. 6. The center piece is a mahogany pattern supplied by the customer, and the finished pieces were cut from a solid forged bar of nickel-chromium-molybdenum steel. This operation was three dimensional machining rather than profiling.

An outstanding example of metal removal by Kellering is shown in fig. 7. The blank is an aluminum forging, and in the process of machining about 60 pct of the metal is removed.

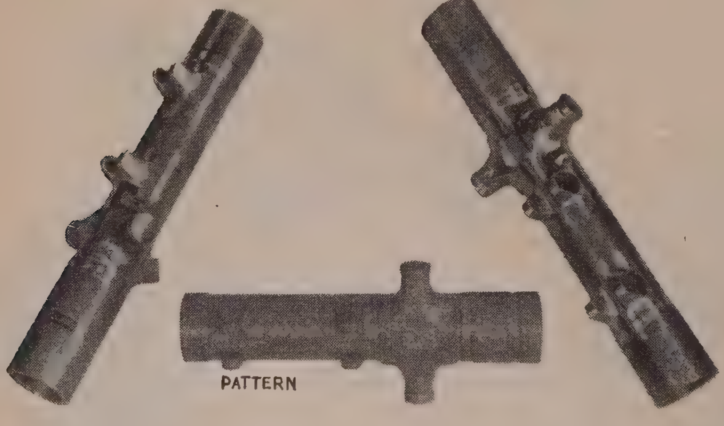


FIG. 6—Machined from solid nickel - chromium - molybdenum steel forging, these parts were Kellered using the mahogany pattern in the center supplied by the customer.

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FIG. 5—Following the operations shown in Fig. 4, excess weight from the side of the forging is removed.

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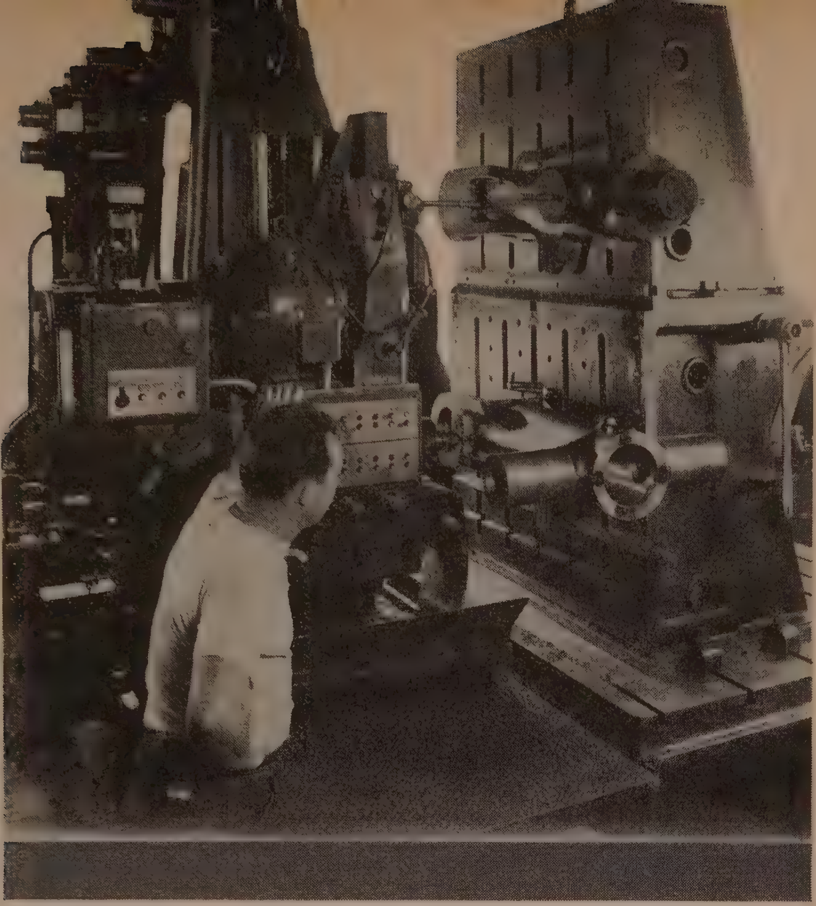

The operating principles of the Keller machine are fairly well known. The work and a model are bolted to a vertical fixture. Cutters and tracers are mounted on a single member so that they move in unison, the tracer traveling over the surface of the model and the cutter duplicating the surface in the workpiece.

Under many operating conditions, the machine reproduces automatically from the model, requiring no guidance from the operator. The size and shape of the end milling cutter are selected for the size and the shape of the part to be machined, and the tracer point is selected to match the cutter. The Keller machine is basically a milling machine with left-right, up-down, and in-out motions actuated by three lead screws. At the end of each lead screw is mounted a magnetic-driven gear box containing two motor-driven clutch magnets that continuously rotate in opposite directions. Energizing one magnet rotates the lead screw in one direction and energizing the other magnet reverses the lead screw. The tracer, through electrical control, selects the magnets to be energized, directing the motion of the machine. The control is sensitive enough that the tracer can copy soft models such as wood or plaster of paris, yet milling cutters are positioned by the lead screws enabling heavy milling operations. A protective device incorporated in the electrical controls prevents cutter damage or breakage from overload by slowing down the machine during heavy cutting.

The cutter and tracer move always in unison since the tracer controls the magnetic clutches. In three-dimensional operation, the tracer covers the entire surface of the model in a series of parallel strokes, either vertically or horizontally. Stroke length can be controlled manually or automatically, and feed is automatic.

By replacing the three-dimensional tracer with a profiling tracer, the machine is able to duplicate the outline of a part following a thin metal template or a pattern.

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FIG. 7—The aluminum forging at left was machined by Kellering into the finished part shown at right. Approximately 60 pct of the metal in the forging was removed.

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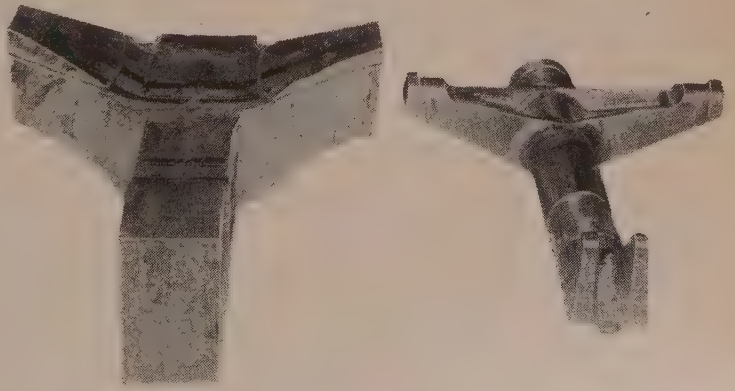

High-Silicon Cast Iron

—for High Temperature Service

Although a number of alloy cast irons have been developed to overcome failure due to growth in cast iron parts exposed to periodic high temperature, these have largely been expensive alloys many of which could not be handled by the facilities of the average small foundry. High-silicon irons, on the other hand, can be handled with ordinary equipment and have proved quite resistant to growth. Melting procedures and further data on the properties of these irons are reported in this article.

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CAST iron parts subjected to service at elevated temperatures frequently fail because they undergo permanent volume increases, commonly called growth, with an accompanying loss in strength. This is especially true when the parts are alternately heated and cooled. The warping and buckling of stove plates, furnace bowls, furnace grate bars, burners, and the heat checking in permanent molds used in the foundry and glass industries are typical examples of this type of failure.

Numerous alloy cast irons have been developed which are not subject to growth. However, such cast irons are quite costly and in many cases cannot be made in the average small foundry. The high-silicon cast irons developed by the British Cast Iron Research Assn., prior to 1928, are a notable exception. These irons, containing over 4 pct Si, are quite resistant to growth, are only slightly more costly than ordinary gray iron and can be made in the average small foundry.

It has been the object of the present investigation to verify the claims made for these irons, to develop a technique for their economical production with modern American equipment and to improve their characteristics for specific purposes. All these objectives have been attained and interesting data on the cause of growth have been collected.

Earlier investigators have shown that growth of ordinary (i.e., low silicon) cast iron occurs in two stages. The first stage or primary growth occurs when iron carbide graphitizes below the Ac_1 temperature. This growth represents the difference in volume between iron carbide and its products of decomposition, ferrite plus graphite. Obviously this volume increase is slight and causes trouble only when close tolerances must be maintained. The second stage or secondary growth is the result of severe transformation stresses which occur when the cast iron object passes through the critical temperature (Ac_1) range. These stresses actually exceed the strength of the iron and consequently microscopic cracks are formed. The presence of oxiding gases which form scale in these cracks accelerates secondary growth.

Fig. 1 shows the relationship between Ac_1 temperature and silicon content for the high-silicon cast irons. For comparison, the Ac_1 temperature of ordinary gray iron is approximately 1400°F.

The effect of critical temperature upon the growth characteristics of cast iron is clearly shown by the growth curves in fig. 2. These curves represent the growth or length increase in inches per inch of bar length as a function of testing temperature and number of cycles to which they were subjected. Cyclic heating to 1300°F, which is below the Ac_1 temperature for both ordinary and high-silicon cast iron, resulted in primary growth of the ordinary gray iron. Since the high-silicon cast irons are fully ferritic they are not subject to primary growth. Cyclic heating to 1500°F, which is above the Ac_1 temperature for ordinary gray iron and below the Ac_1 temperature for the high-silicon cast iron, resulted in secondary growth in the ordinary gray iron only. Cyclic heating to 1845°F, which is above the Ac_1 temperature for both types of cast iron, resulted in secondary growth in both irons.

Another comparison between the growth characteristics of ordinary gray iron and high-silicon cast iron is shown by the growth curves in fig. 3. In these tests each cycle consisted of heating to 1650°F, holding at that temperature for 4 hr, followed by air cooling to room temperature. The ordinary gray iron grew approximately 8 pct in 41 cycles while high-silicon cast irons suffered practically no dimensional change.

Fig. 4 shows representative test bars, used to obtain the curves in fig. 3, after 41 growth cycles. The top bar in fig. 4 (*A*) is a standard test bar that was not subjected to cyclic heating and is shown for comparison only. The buttons on the ends of the bars are short stainless steel studs attached to the bars before they were subjected to the cyclic heating. All length measurements were made between the ends of these studs; thus the presence of adherent scale or loose flaky scale had no effect upon the length measurements. Bar *B* (an ordinary gray iron) was coated with a heavy skin of tightly adherent scale. Bar *C* (an unalloyed 6 pct Si iron) scaled to about the same degree; however, in this case the scale flaked off after each cooling cycle. Bar *D*, containing approximately 6 pct Si, 0.5 pct Cr and between 1¼ and 1½ pct Cu, was highly resistant to scaling. Patent protection covering this development is being sought.

High-silicon cast irons have been used very little in this country, partly because they have not been brought to the attention of American foundrymen and partly because they have a reputation of being extremely brittle.

Cast irons containing 6 pct Si are quite brittle at room temperature, the temperature at which cast iron is usually tested. Fig. 5 shows curves representing impact strength vs temperature for an ordinary gray iron and for a cast iron containing 6 pct Si. From these curves it is apparent that brittleness of the high-silicon irons is a problem only at relatively low temperatures. At

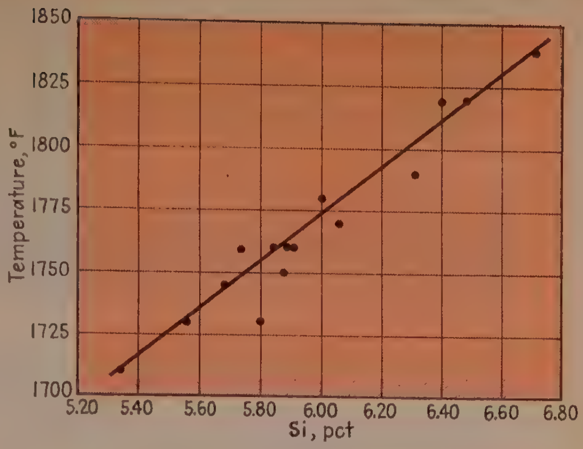

FIG. 1—Curve showing silicon content vs Ac_1 temperature for unalloyed high-silicon cast iron.

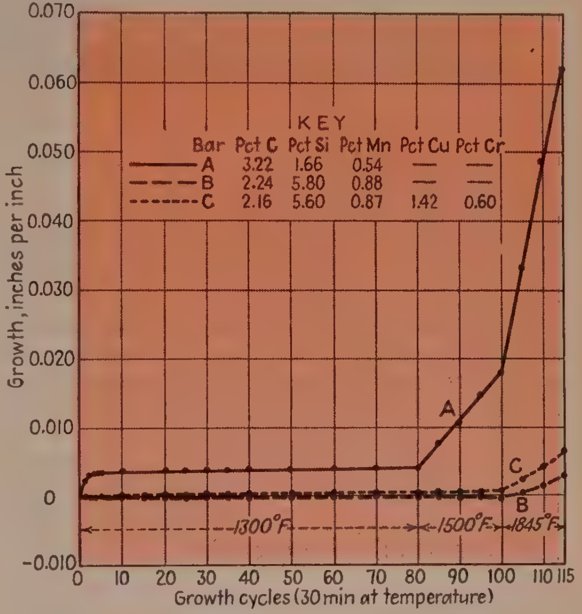

FIG. 2—Growth of high-silicon and regular cast irons on subjection to cyclic heating.

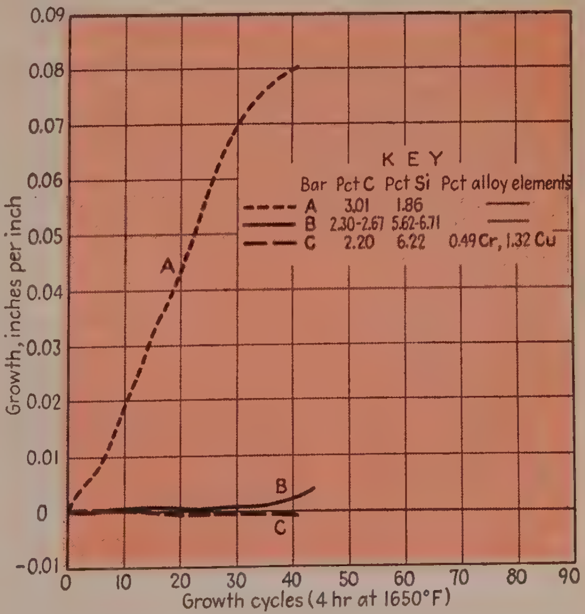

FIG. 3—Growth in specimens of the indicated analyses on cyclic heating to 1650°F, with temperature held 4 hr each heating.

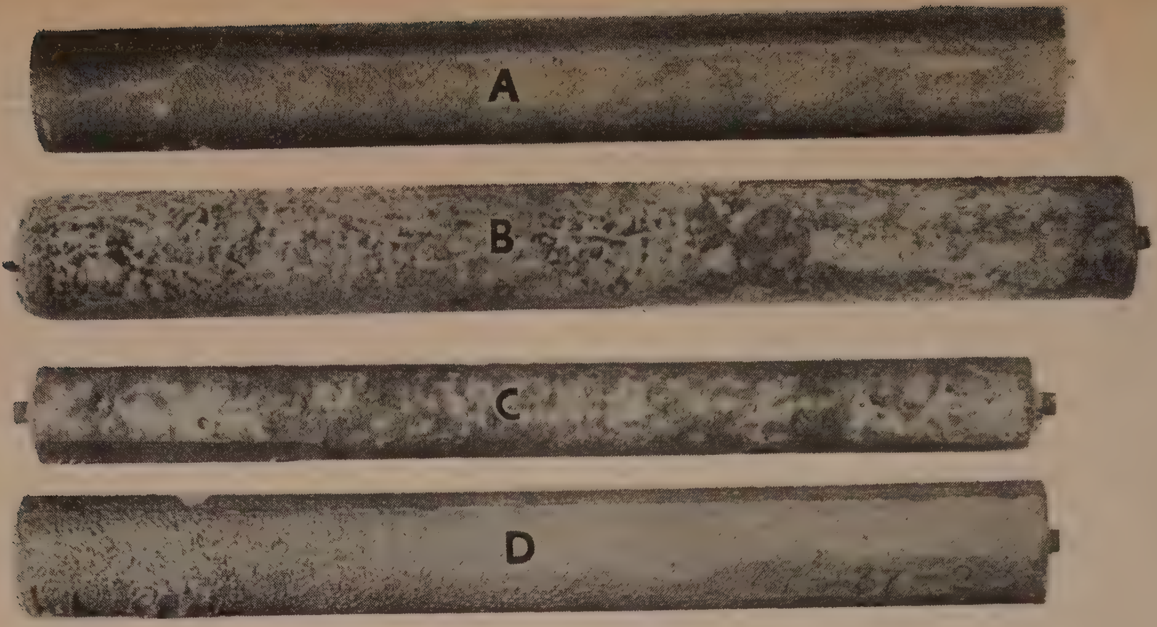

FIG. 4—Standard 10-in. growth test bars before and after cyclic heating. Bar *A* was not heated and is shown for comparison only.

all temperatures above 500°F, the high-silicon iron has greater impact resistance than does the ordinary gray iron.

High-silicon iron castings can be made in the average small foundry since the iron can be melted in the cupola, electric furnace, or small gas-fired pot-type furnace. In cupola melting the charge should contain approximately 0.5 pct more silicon than desired in the final casting to allow for melting losses. The high silicon content in the charge can be obtained from the use of silvery pig iron. The carbon content of the charge should be as low as practical, melting should be rapid and the metal should be tapped from the hearth as soon as possible after melting in order to obtain the desired low carbon content. Additions of copper and chromium can be made in the ladle. The resistance to growth, scaling and impact at elevated temperatures of a cast iron containing 6 pct Si, 0.5 pct Cr and 1.25 pct Cu coupled with the fact that it can be melted and cast in the average small foundry, should make this iron quite useful for parts subjected to high temperatures. Some possible applications for this iron are parts for cook stoves, heating stoves, home furnaces, melting pots, gas and oil burners, heat-treating containers of various types and a wide variety of industrial equipment.

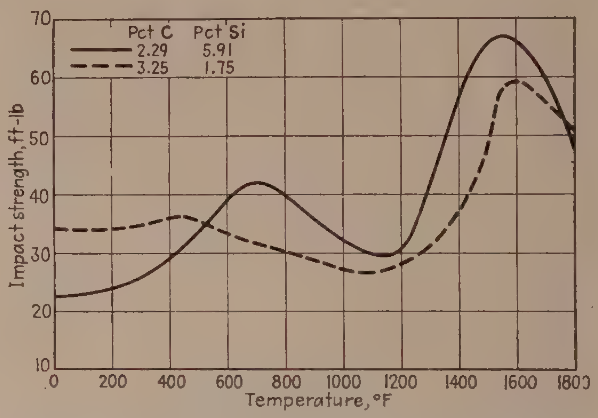

FIG. 5—Impact strength as a function of testing temperature for high-silicon and ordinary cast iron. Specimens were halves of 1.2-in. diam arbitration bars and were broken in impact while supported on 6-in. centers.

The authors express their appreciation for the assistance given by C. H. Lorig, Assistant Director, Battelle Memorial Institute, under whose supervision this research was conducted.—Ed.

Improved Magnetic Alloy for Rectifiers and Amplifiers

A NICKEL-IRON alloy which eliminates arcing at the contacts of mechanical rectifiers and improves the sinusoidal wave output of magnetic amplifiers is described in report PB-93861 issued by the Office of Technical Services, Dept. of Commerce, Washington.

Research on the alloy, carried out at the Naval Ordnance Laboratory, suggests that the controlling factors, namely magnetic annealing combined with drastic cold-reduction, may produce equally beneficial results in other magnetic alloys.

The alloy, designated Permenorm 5000-Z, is described as having a rectangular hysteresis loop which is responsible for arc eliminating properties and sharp saturation characteristics valuable in amplifier applications.

Metal Congress Salutes Alloy Steel

30th annual metal congress and exposition pays tribute to alloy steel . . . Distinguished service awards presented to 75 living persons . . . H. W. Work to head ASM . . . Dana Smith elected president of nondestructive testing society . . . G. N. Sieger to lead AWS.

FEATURING a "Salute to Alloy Steel," the 30th annual National Metal Congress and Exposition, held the past week in Philadelphia, paid tribute to the 75th year of progress in alloy steels.

During the exposition itself, which set a new high for attendance, there was a permanent visualization on stage of the part played by alloy steels in making America the leading industrial nation in the world. The Congress phase included a special series of technical and historical papers about alloy steel, and distinguished service awards were presented to living individuals who have made outstanding contributions to the progress in alloy steels.

Presentation of five awards by ASM President Francis B. Foley highlighted the society's annual dinner program, which was held at the Benjamin Franklin Hotel, Oct. 28. A. L. Boegehold, head of the metallurgical department, research laboratories division, General Motors Corp., received the past president's medal; J. W. Spretnak, member of the metallurgical teaching staff at Ohio State University, Columbus, was awarded the Henry Marion Howe medal; and Morris Cohen, professor of physical metallurgy at MIT, was the recipient of the Campbell Memorial Lecture certificate. The ASM medal for the advancement of research was presented to W. H. Dow, president of Dow Chemical Co., Midland, Michigan, and F. C. Frary, director of research, Aluminum Co. of America, received the ASM gold medal.

The theme of the Congress and Exposition, "Salute to Alloy Steel," also came in for its share of attention when the recipients of the Distinguished Service Awards for alloy steel development were announced. The names of the 75 individuals honored for meritorious contributions to alloy steel progress are listed elsewhere in this report. J. M. Schlendorf, vice-president of Republic Steel Corp., was chairman of the awards committee, and R. E. Zimmerman, vice-president of U. S. Steel Corp., was vice-chairman.

A unanimous ballot for the election of the following ASM national officers was cast at the annual meeting, Oct. 27; Harold K. Work, manager of research and development, Jones & Laughlin Steel Corp., president; Arthur E. Focke, chief metallurgist, Diamond Chain Co., Inc., vice-president; and William H. Eisenman, re-elected secretary. Two new trustees were also elected; F. J. Robbins, vice-president and metallurgical engineer, Plomb Tool Co., and also president of Sierra Drawn Steel Corp., and H. P. Croft, director of technical control and research, midwestern district, Chase Brass and Copper Co.

Following the adjournment of the meeting, Morris Cohen, professor of physical metallurgy, MIT, delivered the 1948 Edward deMille Campbell Memorial Lecture, entitled "Retained Austenite."

The 29th annual meeting of the American Welding Society, held in conjunction with the National Metal Congress, stressed welding research and development work in progress in such categories as ship design, railroads, storage tanks, pressure vessels, and piping. Some 100 authors participated in the five-day technical session.

At the business meeting of the society, held prior to the annual meeting, new officers were elected and the announcement of these officers was made at the annual meeting. They include: president G. N. Sieger, president and general manager of S.M.S. Corp., Detroit; first vice-president, O. B. J. Fraser, assistant manager of the Development and Research Div. of International Nickel Co., New York; second vice-president, H. W. Pierce, assistant to the general manager, New York Shipbuilding Corp., Camden, N. J.

Four Directors at Large to the American Welding Society, likewise previously elected, were announced. These are: J. J. Chyle, director of welding research, A. O. Smith Corp., Milwaukee; J. H. Humberstone, director of research and welding engineering, Arcrods Corp., Sparrows Point,

● ● ● Highlight of the 30th Annual National Metal Congress and Exposition was the ASM dinner, held Thursday, October 28, at the Benjamin Franklin Hotel, Philadelphia.

Md.; T. B. Jefferson, editor of *Welding Engineer*, Chicago; and H. N. Simms, metallurgist, Black, Sivalls & Bryson, Inc., Oklahoma City.

John J. Crowe, assistant to the vice-president in charge of technical relations, Air Reduction Sales Co., received the Samuel Wylie Miller Medal, awarded annually for conspicuous contributions to the advancement of welding or cutting metals.

The 1948 AWS Adams Lecture, "The Metallurgy of Covered Electrode Weld Metal," was delivered by G. E. Claussen of Ried-Avery Co., Baltimore. The Lincoln Gold Medal was awarded to E. Paul DeGarmo, associate professor of Mechanical Engineering, University of California, Berkeley, Calif. His paper, "Tests of Various Designs of Welded Hatch Corners for Ships," was selected by the Lincoln award committee as the outstanding paper on welding prepared during the past year.

The jury of award of the Resistance Welder Manufacturers Assn. 1948 prize contest selected three papers from industry sources and two from university sources for awards totaling $2000. The first prize of $750 for the best paper from an industrial source was awarded to Frank G. Harkins, welding engineer of Solar Aircraft Co., San Diego, Calif., R. C. Jones, sales engineer of Taylor-Winfield Corp., Warren, Ohio, won second prize of $500, and C. E. Smith, chief electrical engineer, and R. H. Blair, research engineer, of Taylor-Winfield co-authored the third $250 industrial source prize winning paper.

Three metallurgical scientists at Rensselaer Polytechnic Institute, Troy, N. Y., collaborated in winning both university awards. W. F. Hess, head of the Metallurgical Engineering Dept., and W. J. Childs and W. D. Doty, research fellows, won $300 as co-authors of the best paper and W. F. Hess and W. J. Childs coauthored the paper that won the second prize of $200.

The awards were made at a special Award Dinner held Monday evening, Oct. 25. The annual banquet of the American Welding Society was held Thursday evening, Oct. 28, at which time G. Edward Pendray, the speaker of the evening, talked on "Jet Propulsion and Rocket Power."

The speaker at the annual fall dinner of the Institute of Metals Div. of AIME was Waldo E. Fisher, professor of industry, Wharton School, University of Pennsylvania. A. A. Smith, Jr., superintendent of research, American Smelter & Refining Co. and chairman of the Institute of Metals Div., served as toastmaster, and R. M. Brick, University of Pennsylvania and chairman of the Philadelphia section, welcomed the visiting members.

Dr. Fisher, speaking on "The Taft-Hartley Act; An Appraisal," reviewed the provisions of the bill, stressing the fact that the act should be considered an experiment subject to subsequent amendment, and discussed the effectiveness of the legislation in attaining its objectives.

Dana W. Smith, Permanente Metals Corp., took office as president of the Society for Non-Destructive Testing at the group's annual business meeting on Thursday. Mr. Smith succeeds Don M. McCutcheon, Ford Motor Co., who served as president for 1948. Other new officers of the society elected at the meeting include vice-president, Leslie W. Ball, Naval Ordnance Laboratory; treasurer, H. Mermagen, University of Rochester; director, J. H. Bly, Pratt & Whitney Aircraft Div., Niles-Bement-Pond Co., W. Hartford, Conn.; director, William Thomas, Magnaflux Corp. Philip D. Johnson was reelected treasurer.

The society's meeting was highlighted by the annual Mehl Lecture, delivered this year by Floyd A. Firestone, consulting physicist, Washington. Dr. Firestone's subject was "The Supersonic Reflectoscope, An Instrument for Non-Destructive Testing and Measuring by Means of Sound Waves."

The continued interest in the application of metallic alloys to high temperature service was indicated by the presentation of three papers at ASM sessions: "Nickel-Base Alloys for High Temperature Applications" by A. G. Guy, professor of mechanical engineering, North Carolina State College; "High Temperature Deformation Characteristics of Several Sheet Alloys" by J. Miller and G. Guarnieri, research metallurgists, Cornell Aeronautical Laboratory; and "Stability of Steels at Elevated Temperatures" by A. B. Wilder, chief metallurgist, Pittsburgh Works, and J. O. Light, chief metallurgist, Lorain Works, National Tube Co.

Guy's discussion involved the development of a group of nickel-base alloys having unusually high rupture strengths at 1500°F. The best material in this series has the composition range of 12 to 15 pct Cr, 5 to 6 pct Mo, 5.5 to 7 pct Al, 2 pct Cb, 0.5 pct B, 4.5 pct Fe, 0.5 pct Mn, 0.5 pct Si, and balance Ni. The investigator found that these alloys have excellent oxidation resistance and moderate fatigue strength; compared to cobalt-base materials, however, these alloys have low elongation and impact resistance.

The paper by Miller and Guarnieri discussed the determination of true stress-true strain characteristics, over a range of temperatures and strain rates, from short-time constant rate tensile tests at elevated temperatures, of various types of alloys. The alloys selected for test included SAE 1020 as a reference material, Inconel to represent a comparatively stable annealed material, Inconel X to represent a fully-aged alloy, and S-816, both annealed and cold rolled, to represent an alloy susceptible to age hardening in both the annealed and cold-rolled conditions.

The third paper reviewed the results obtained in an examination of some twenty types of steel for evidence of structural changes, oxidation characteristics and impact properties after exposure for 10,000 hr at 900°, 1050° and 1200°F.

Of the various types of steels tested, the titanium and columbium-molybdenum steels did not graphitize during 10,000 hr exposure at either 900° or 1050° F, while both the parent metal and weld heat-affected zone of the molybdenum and zirconium steels graphitized. Graphite was observed as a chain-like structure in the weld heat-affected zone of the zirconium-molybdenum steels tested. The 12 pct Cr steels appeared to be the most stable with respect to microstructure, impact properties and hardness, at all temperatures.

Carbide precipitation in the grain boundaries was observed in the austenitic 18-8, 18-8 FM and 18-8 Mo steels in both the parent metal and weld heat-affected zone after 10,000 hr exposure at all three temperatures. This first occurred in the weld heat-affected zone. Carbide precipitation lowered the Charpy impact strength of the parent metal, particularly as exposed at 1050° and 1200°F. After 10,000 hr exposure at 1200°F, sigma phase was observed metallographically in the parent metal of the 18-8 Ti and 18-8 Cb steels and in the weld heat-affected zone as exposed at 1050° and 1200°F. The lower impact properties in the parent metal after exposure at 1200°F were associated with sigma phase.

The authors also found that the Charpy impact strength of the zirconium steel parent metal was not appreciably affected by graphitization after 10,000 hr exposure at 900° and 1050°F. The 17 pct Cr steel parent metal was embrittled by exposure for 10,000 hr at 900° to 1200°F and an appreciable increase in hardness was observed after 10,000 hr exposure at 900°F. Oxidation of the parent metal in the stainless alloys after exposure in air for 10,000 hr at 900° to 1200°F was essentially negligible. The low alloy steels containing zirconium were appreciably oxidized after exposure at 1200°F.

Allied work was also reported by N. J. Grant, associate professor of metallurgy, and J. R. Lane, research assistant, Massachusetts Institute of Technology, in a paper entitled "Aging in Gas Turbine-Type Alloys." Four high-temperature alloys, including low carbon Vitallium, modified high carbon Vitallium, the nickel-cobalt-chromium-molybdenum alloy 6059 and a modified N-155, were investigated to determine their aging characteristics. Aging was studied with the help of a wide variety of techniques, including X-ray diffraction, stress-rupture testing, microscopic examination, the use of the dilatometer and magnetometer, and the measurement of electrical resistivity.

The lowest temperature for a precipitate to form, the temperature of maximum precipitation, and the re-solution temperature for each alloy were determined. The effect of aging on mechanical properties was evaluated by means of stress-rupture testing.

A test to give the relative hardenabilities of deep-hardening steels, overcoming the deficiencies of the Jominy end-quench test insofar as these types of steels are concerned, was described by Gerrit DeVries in his paper "An End-Quenched Bar for Deep Hardening Steels." To permit a comparison of the hardenability of steels of great hardenability with relative ease, DeVries modified the Jominy test by lengthening the bar 2 in., making it 6 in. long, and by keeping the top of the bar hot in a furnace while the end was being quenched. This allows the bar to be kept in the quenching fixture for any period of time.

The test setup made the temperature in the bar a function of the distance from the quenched end and allowed the steel in the bar to transform isothermally at the various temperatures. After the bar had been in the fixture for an hour, it was taken out and given an overall quench. This resulted in the austenitic areas being transferred to martensite. The amount of transformation at each temperature was then determined by making hardness measurements along the side of the bar and comparing the hardness at each position with the maximum hardness. The relative amount of transformation at any temperature was then estimated, and the relative hardenability of different steels determined, by comparing the loss in hardness at various points with the temperature at those points during the quench.

The speaker reported that the test also gives the approximate temperature at which bainite and pearlite formation begins and ends and also the amount of transformation in a given period of time.

Attention at the sessions was also directed toward research work that has been conducted with regard to low-carbon austenitic stainless steel. Two papers discussing various aspects of the subject were presented, one by W. O. Binder and C. M. Brown, metallurgists, Union Carbide and Carbon Research Laboratories, Inc., Niagara Falls, N. Y., and R. Franks, chief metallurgist, Electro Metallurgical Co., sales development and technical service dept., Pittsburgh, entitled "Resistance to Sensitization of Austenitic Chromium-Nickel Steels of 0.03 Pct Max. Carbon Content,". and the other by S. J. Rosenberg and J. H. Darr, senior metallurgist and junior metallurgist, respectively, National Bureau of Standards, Washington, D. C., entitled "Stabilization of Austenitic Stainless Steel."

In the first-mentioned paper, the authors reported a basic study of low-carbon austenitic chromium-nickel steels in an effort to determine the effects of chromium, nickel, carbon, and nitrogen on their susceptibility to intergranular corrosion. The compositions investigated ranged from 16 to 25 pct Cr, 6.5 to 25 pct Ni, 0.005 to 0.05 pct C and 0.002 to 0.15 pct nitrogen. Additions of up to 3 pct Mo and small amounts of columbium were also investigated.

This study indicated that immunity to intergranular attack may be attained by lowering carbon content and adjusting the composition of the steels to avoid intergranular carbide precipitation. The authors found that complete immunity may be obtained if the carbon is held below 0.015 to 0.020 pct, depending upon the balance of the composition. Also, complete immunity may be obtained with a small addition of columbium if carbon is in the neighborhood of 0.03 pct.

Since steels subjected to high temperatures only during fabrication require somewhat less than complete immunity to intergranular corrosion that more extended heating demands, partial immunity was also studied from the standpoint of the time-temperature-precipitation characteristics of the steels. The start of carbide precipitation was found to be influenced by chromium, nickel and nitrogen. It was found that partial immunity may be obtained in steels of balanced composition with the carbon content not more than about 0.03 pct, while in 18 pct Cr nickel steels containing 2 pct Mo, partial immunity may be obtained with carbon at about 0.03 pct.

Rosenberg and Darr presented data on the resistance to intergranular embrittlement of 23 austenitic corrosion resisting steels, with 18 Cr-10 Ni base composition, in 12 different initial conditions. Susceptibility to intergranular attack was determined after seven different sensitizing treatments, followed by a maximum of 14 days' exposure in a boiling acidified copper sulphate solution.

Of the various sensitizing treatments utilized, maximum susceptibility to intergranular attack was found to develop by either 8 or 21 days at 1020°F, with the commonly used sensitizing treatment of 2 hr at 1200°F ineffective in developing susceptibility in any but the most vulnerable steels.

The straight carbon austenitic corrosion-resisting steels were very susceptible to intergranular embrittlement. The susceptibility decreased as the carbon content decreased but with the exception of one low carbon steel in the cold-rolled condition only, even the very low carbon steels (0.025 pct C) were vulnerable regardless of heat treatment. In the columbium and titanium bearing steels, carbon content within the range of 0.06 to 0.13 pct had no influence upon the resistance to intergranular attack except insofar as it influenced the Cb:C or Ti:C ratios. Steels having similar ratios of stabilizing element to carbon had approximately the same degree of susceptibility to intergranular attack regardless of the carbon content.

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Grain Size Study Described by SNT Lecturer

A two-day program covering new developments in a number of non-destructive testing methods was held by the Society for Non-Destructive Testing, in conjunction with the National Metal Congress. The Society's 1948 Mehl Lecture was delivered by Dr. Floyd A. Firestone, consulting engineer, Washington, on "The Supersonic Reflectoscope, An Instrument for Non-Destructive Testing and Measuring by Means of Sound Waves." Dr. Firestone dealt primarily with unusual uses of the instrument developed in the laboratory which in the future should prove valuable in industry.

One of the most interesting of these is the determination of average grain size in metals by the study of the pattern caused by wave reflection of grains of large size in respect to wave length. By choosing the proper wave length, i.e., that is lengthening wave length for larger grains, any size grains can be determined. In effect relatively large grains diffuse the waves and show up as small flaws would in ordinary inspection work.

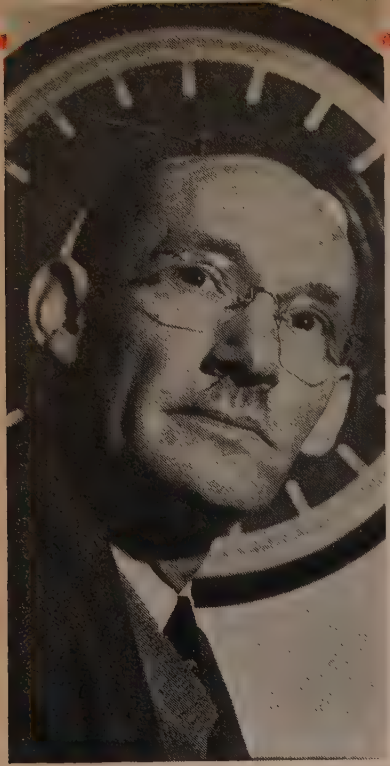
The use of shear type waves for measurement of Young's modulus, the modulus of elasticity and Poisson's ratio was described, and methods using combined rocking-shearing waves for surface testing and measurement by sending waves, much like waves of water, along the sample surface, with penetration adjusted by wave length, were revived. The shear and other type waves move more slowly through the metal samples than longitudinal waves, but the individual properties of these waves provide the key in techniques not possible with the longitudinal type.

An instrument designated the Raybender, which has been built and used only in the laboratory to permit testing of spots inaccessible to the beams of a standard instrument, was described. In the unit, the quartz crystal is contained in a mercury chamber somewhat removed from the specimen surface. The crystal is angled to the specimen and rays, transmitted by the mercury, hit the sample and are deflected to the spots to be reached.

A quick test using shear waves for determining directional differences in the shearing moduli of cold-rolled metals was described and it was reported that differences up to 10 pct in the same samples according to direction of roll, have been found.

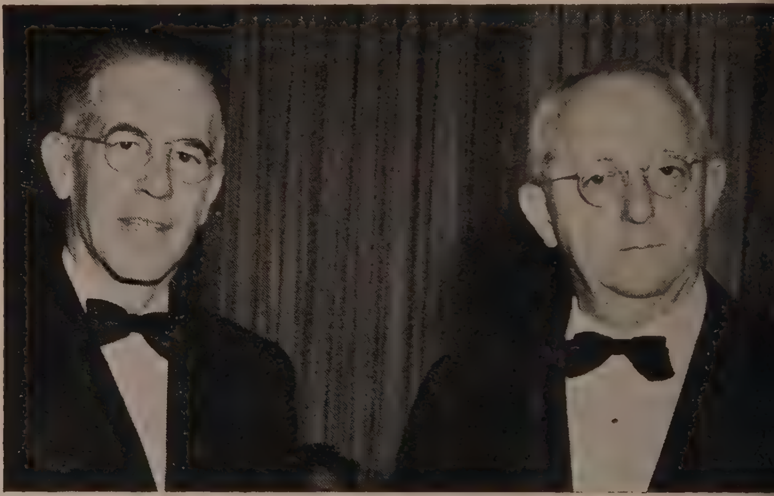
Measuring the height of liquid iron in a cupola and gaging stock being rolled on a cold mill, were among the uses of radioactive isotopes, in addition to serving as a source in radiography, discussed in the paper "Experimental Work Employing Radioisotopes Cobalt and Selenium," presented by Don M. McCutcheon, Ford Motor Co. For measuring the height of liquid iron in a cupola, a source, Se75 was located on one side of the hearth and a detector on the other side. Tests, the speaker said, indicated adequate sensitivity for this technique to be of practical value. The paper also touched upon the possibilities of using a beta emitter on a cold mill for thickness gaging and although such an installation has not yet been made. The speaker presented a number of radiographs taken with the radioisotopes as the source and explained some of the advantages and disadvantages of this technique.

The development and application of a universal exposure calculator for radium radiography was described in a paper by N. A. Kahn, E. A. Imbembo and J. Bland, New York Naval Shipyard. This calculator, arranged in the form of a circular slide rule is used in conjunction with standardized solutions and permits relatively inexperienced operators to determine exposure times.



Dana W. Smith, Permanente Metals Corp., new president of Society for Non-Destructive Testing.

G. N. Sieger, AWS president, H. O. Hill, outgoing AWS president, G. Edward Pendray, principal speaker at the banquet and E. V. David, chairman of the AWS convention committee.



G. E. Claussen, 1948 AWS Adams Lecturer, and John J. Crowe, winner of the Samuel Wylie Miller Memorial Award.

Morris Cohen, professor of physical metallurgy, MIT, was recipient of the Campbell Memorial Lecture Certificate.

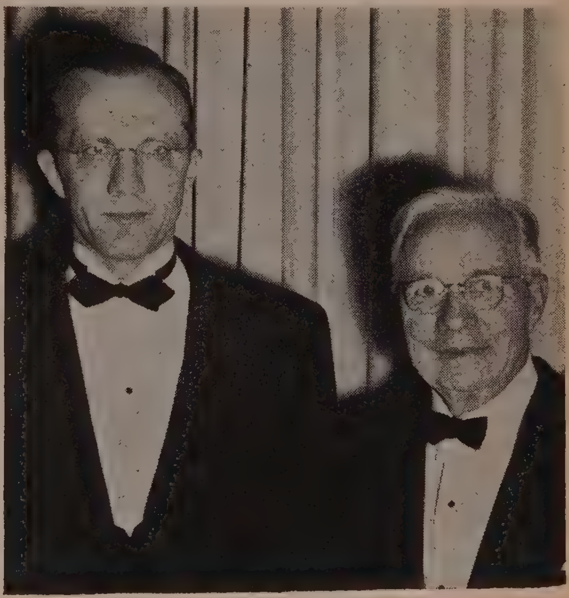
ASM vice-president-elect, Arthur E. Focke, chief metallurgist, Diamond Chain Co., Inc.

Francis C. Frary, director of researc Aluminum Co. of America, recipient the ASM Gold Medal.

een at the annual fall AIME dinner were, from left to right, F. N. Rhines, Carnegie Institute of
echnology and senior vice-chairman of the Institute of Metals Div., the present chairman, A. A.
mith, Jr., American Smelting & Refining Co., and E. A. Anderson, New Jersey Zinc Co., last
year's chairman.

ASM president-elect, Harold K. Work, manager research and development, Jones & Laughlin Steel Corp.

SM president Francis B. Foley presents the Henry Marion Howe
edal to Joseph W. Spretnak, metallurgical department, Ohio
State University.



Harry W. Pierce, second vice-president of AWS and assistant to the general manager, New York Shipbuilding Corp., and O. B. J. Fraser, AWS first vice-president and assistant manager of Development and Research Div., International Nickel Co.

d H. Dow, president of Dow Chem-
o., Midland, Mich., recipient of the
Medal for the Advancement of
Research.

The speaker's table at the AWS annual banquet, with H. O. Hill, Bethlehem Steel Co., retiring president, presiding.

Recipients of ASM Awards for Distinguished Service

Robert R. Abbott, Cleveland Heights, Ohio, as a pioneering authority on the intelligent use of alloy steel, who influenced practices in many consuming industries.

O. H. Ammann, New York, for extensive application of the strong structural steels to long span highway bridges.

Robert S. Archer, Climax-Molybdenum Co., for systematization of knowledge basic to the science of metals.

Wilbur H. Armacost, Combustion Engineering Co., for promoting the use of low alloy steels for boilers and auxiliaries in high temperature service.

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D. K. Bullens, New England Auto Products Corp., for his inspirational work in collecting and publishing American practices in "Steel and Its Heat Treatment."

H. T. Chandler, Vanadium Corp. of America, for early development of chromium-molybdenum and vanadium steels and their application to automobiles.

John L. Cox, Midvale Co., for early adaptation of alloy steels for armor and projectiles to industrial purposes.

Edmund S. Davenport, United States Steel Corp., for his revealing studies on isothermal transformation, leading to improved heat treating techniques.

C. N. Dawe, Detroit Athletic Club, Detroit, Mich., for development of nickel-molybdenum steels and their application to automotive parts.

Enslo S. Dixon, for early and extensive application of chromium steels in oil refinery equipment.

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C. B. Francis, Pittsburgh, Pa., author of the most inclusive and authoritative work on American practices in steel manufacture and treatment.

Herbert J. French, International Nickel Co., for promoting the industrial uses of engineering alloy steels.

Emil Gathman, Sr., Gathman Engineering Co., for conservation of alloys and alloy steel by improved ingot mold designs.

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Frank P. Gilligan, Farmington, Conn., for pioneer guidance and 25-year chairmanship of the SAE Committee on Steel Specifications.

Norman P. Goss, South Euclid, Ohio, for discovering a commercial process for inducing directional crystallization in transformer and electrical sheet.

H. W. Graham, Jones & Laughlin Steel Corp., for perfecting manganese steels used widely for oil field equipment, armor and other heat treated parts.

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Marcus A. Grossman, Carnegie-Illinois Steel Corp., for evaluating influence of specific elements on the hardenability of steels.

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Walter G. Hildorf, Timken Roller Bearing Co., for research and steelmaking developments that extended the use of alloy steels in high temperature equipment.

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Walter E. Jominy, Chrysler Corp., for devising hardenability test bearing his name.

Augustus B. Kinzel, New York, for early work on high yield strength steels and for leadership in studying the weldability of alloy steels.

Alan Kissock, Laurelton, N. J., for devising correct steelmaking processes, especially for the molybdenum alloys.

Harry B. Knowlton, International Harvester Co., for applying alloy steels to agricultural implements and farm tractors.

Fred Loosely, Dominion Foundries & Steel Co., inventor and producer of alloy steel of improved machinability, largely used in Canadian armored vehicles.

William J. MacKenzie, Youngstown Sheet & Tube Co., for promoting the use of alloy steels throughout American industry.

in the Alloy Steel Industry

• • • The award was presented by the American Society for Metals at the 30th Metal Congress to individuals who have made notable contributions to alloy steel development.

Frank M. Masters, Consulting Engineer, Harrisburg, Pa., for pioneering use of strong structural steels in long span railroad bridges.

F. E. McCleary, Detroit, for developing molybdenum and chromium-vanadium steels and extending their automotive applications.

John McConnell, Indianapolis, for pioneering the production of alloy steels in the openhearth furnace.

Harry W. McQuaid, Cleveland, for distinguishing between abnormal and normal steels and interpreting the relationship between grain size and hardening.

John Mitchell, Carnegie-Illinois Steel Co., for leadership in the development of the National Emergency Alloy Steels.

N. L. Mochel, Ridley Park, Pa., for promoting the use of low alloy steels in heavy electrical generating and transmission equipment.

W. A. Newman, Canadian-Pacific Railroad, for the application of alloy steels to severe services on Canadian railroads.

J. H. Parker, Carpenter Steel Co., for devising and producing alloy steels acceptable to the US Navy and the automotive industry.

C. F. Pascoe, Canadian Car & Foundry Co., for improvement and development of alloy cast steels for general engineering use in Canada.

W. E. Ruder, General Electric Co., for applying superior alloy irons and steels to electrical equipment and large steam turbines.

Adolph O. Schaefer, The Midvale Co., for development of many special alloy steels for ordnance and the heavy industries.

Robert B. Schenck, General Motors Corp., for devising inspection and production methods whereby manganese steels could be widely used for automotive parts.

J. M. Schlendorf, Republic Steel Corp., for pioneering and continuing efforts to promote the use of alloy steels throughout American industries.

Robert W. Schlumpf, Houston, Texas, for utilization of alloy steel in oil well drilling equipment.

Martin H. Schmid, Republic Steel Corp., for promoting intelligent use of alloy steels throughout American industries.

T. D. Sedwick, Chicago, for pioneering and constructive work in applying alloy steels to locomotive forgings.

Charles H. Shapiro, Houston, Texas, for utilization of alloy steel in oil well drilling equipment.

Benjamin F. Shepherd, Ingersoll-Rand Co., for developing the martempering technique.

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O. L. Starr, Caterpillar Tractor Co., for early recognition of those properties of alloy steels that are indispensable to diesel engines.

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Jerome Strauss, Vanadium Corp. of America, for pioneer work in the application of wrought and cast alloy steels to naval ordnance.

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John F. Wandersee, Detroit, for his pioneering work with alloy steel in automotive applications.

J. M. Watson, Detroit, for active promotion of the use of alloy steels in motor cars.

Blaine B. Westcott, Gulf Research & Development Co., for application of alloy steels and irons in oil field and refinery equipment.

Albert E. White, University of Michigan, Ann Arbor, Mich., for contributions in the development, promotion and selection of steels for high temperature service in power plants.

Willis R. Whitney, General Electric Co., for initiating and supporting research into many branches of alloy steel metallurgy.

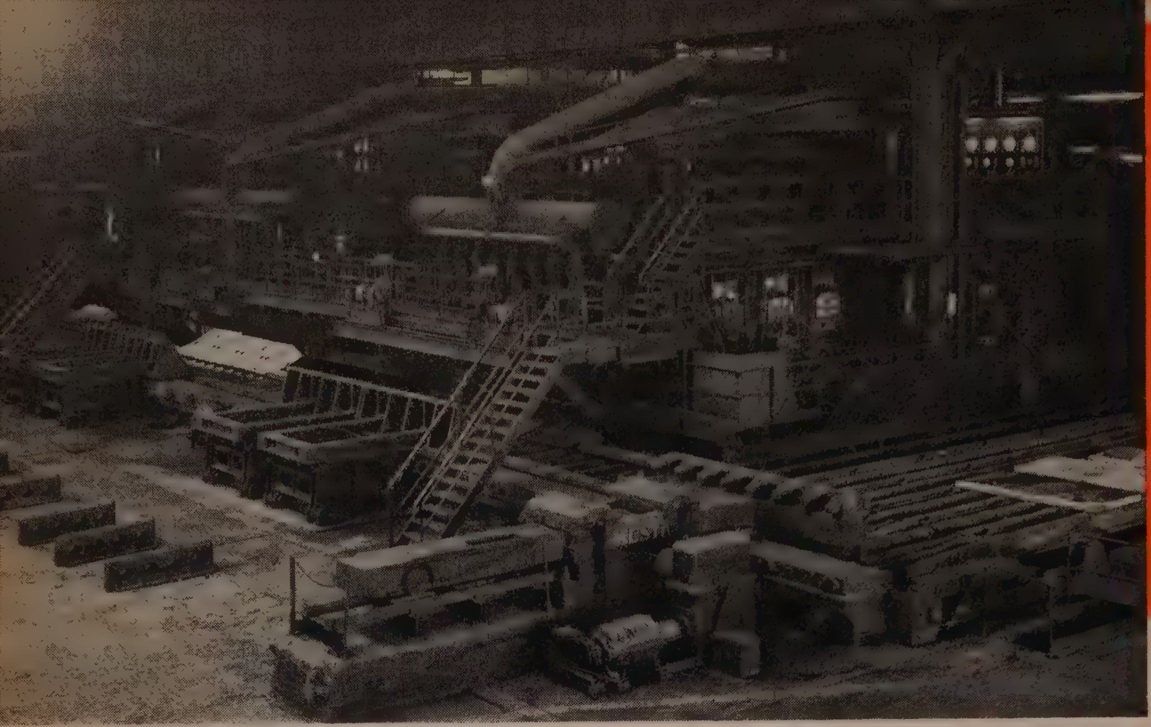
Clyde Williams, Battelle Memorial Institute, for directing the War Metallurgy Committee's researches into alloy steels.

K. D. Williams, Chevy Chase, D. C., for his efforts toward steady improvement of naval propulsion systems by the use of alloy steels.

William P. Woodside, Park Chemical Co., for promoting the interchange of information about heat treatment and use of alloy steel during World War I.

W. H. Worrilow, Lebanon Steel Foundry Co., for promoting the use of alloy steel castings throughout American industry.

Trygve Yensen, Westinghouse Electric Corp., for researches resulting in large improvement of the magnetic properties of iron alloys.



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The new slab heating furnace at Irvin Works is shown in the right foreground. This new furnace, fourth in the group, provides additional slab heating facilities for the 80-in. hot strip mill.

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New Slab Heating Furnace

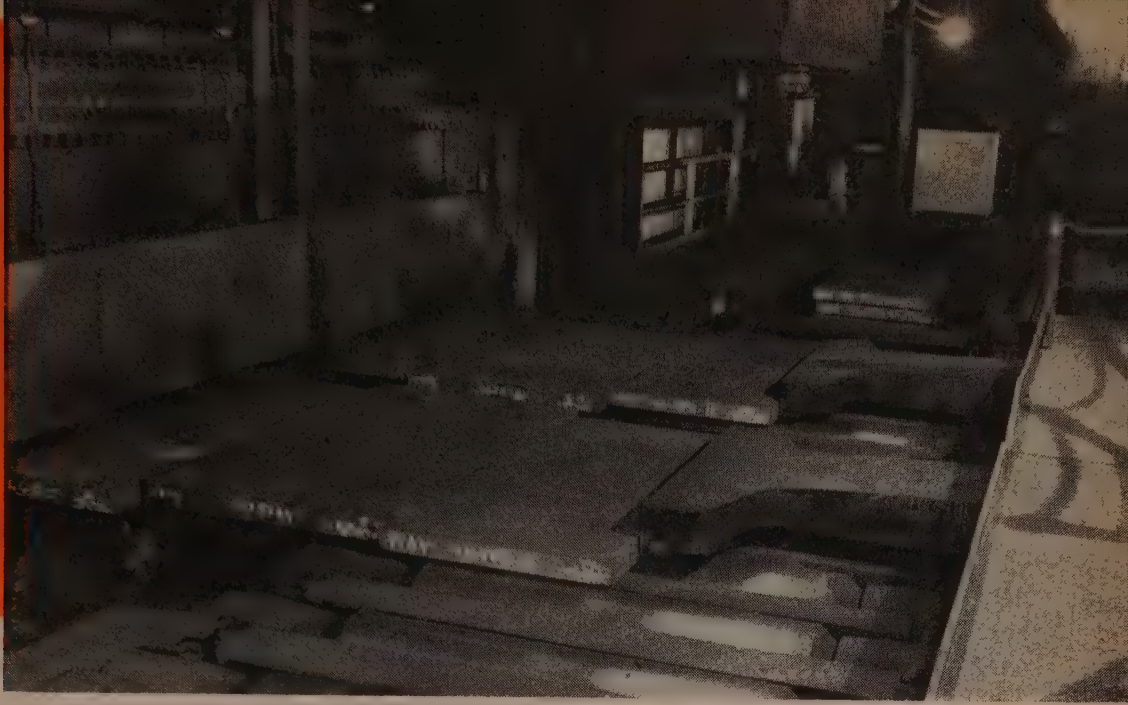
A NEW slab-heating furnace, with a maximum heating capacity of 105 tons per hr, has been installed by the Carnegie-Illinois Steel Corp. at its Irvin Works to provide additional slab heating facilities for the 80-in. hot strip mill. The additional heating capacity was necessary to take care of the steel tonnage formerly rolled in sheet bar form at the Vandergrift plant of Irvin Works. That practice has now been discontinued and all carbon sheet production has been transferred to the Irvin plant where sheet steel will be produced in strip form. No increase in capacity of the Irvin Works is involved. However, improved quality of sheet steel produced there will result from more efficient processing methods possible in strip-sheet production.

The furnace is zone-controlled, triple-fired, end-charged, end-discharged, and continuous, and includes a recuperator employing silicon-carbide type tubes designed specifically for this service. The recuperator is equipped with corebusters and is of sufficient size to preheat all combustion air to approximately 800°F.

Maximum capacity of the furnace is attained when heating two rows of cold slabs, 6 to 8 in. thick and 8 ft, 10 in. long, to 2350°F. Its design permits heating slabs from 3 to 8 in. thick, 20 to 60 in. wide, and 60 to 216 in. in length, to uniform rolling temperature throughout. Inside width of the furnace is 21 ft and the effective length is 80 ft. It was built to line up with three existing furnaces.

Primary heating zone of the furnace has separately controlled over-and-under-fired burners, while the secondary soaking zone has over-fired burners. Fuel normally used is coke oven gas, supplied from the Clairton Coke Works. However, the furnace was designed to permit the use of oil in the event of gas failure. The gas burners are of the controlled, long-flame luminous type. The waste-gas flue is arranged so that the products of combustion can be discharged to either the stack or to the collecting flue for the waste heat boilers.

A silicon-carbide type brick and alloy steel dry-skid construction was used for the hearth and slag zone. Roof of the furnace is of suspended high-temperature ceramic-type tile. Silicon-carbide type brick were used in the walls from the bottom to 1 ft above the skid line. High-temperature quality insulating refractory brick



Charge end of the slab heating furnaces at Irvin.

At Irvin Works . . .

A new slab heating furnace, installed at the Irvin Works of Carnegie-Illinois Steel Corp. to provide additional slab heating facilities for the 80-in. strip mill, is described in this article. The unit, which is zone-controlled, triple-fired and continuous, will handle slabs from 3 to 8 in. thick, 20 to 60 in. wide and 60 to 216 in. long.

were used from 1 ft above the skid line to the suspended roof.

Inspection doors of the furnace are of cast iron, refractory lined and operated by air cylinders. Slag doors, bricked up when the furnace is in operation, are approximately 2 ft wide by 30 in. high to the spring line of the arch to permit access. The double, cast iron, refractory-lined charging doors are operated by an electric thruster. A water-cooled lintel is provided at the charging doors. The double, cast iron, refractory-lined discharge doors are operated automatically by electric motors. Both charge and discharge doors are interlocked with the pusher controls.

Four main water-cooled skids were provided, with two skids located on each side of the furnace centerline on 5-ft, 9-in. centers. Outside skids were located 3 ft, 9 in. from the centerline of the inside skids. These skids were constructed of double extra heavy oil still tubing of the 4 to 6 pct Cr type. Wearing bars were welded continuously along the top surface. Skids in the main heating zone are carried on five water-cooled cross supports spaced on approximately 4-ft, 3-in. centers, braced to resist transverse stresses. Provision was made to accommodate expansion and contraction of all the skid pipes and supports.

Flue and stack were designed with sufficient capacity to handle all waste gases plus 30 pct excess air when burning full gas capacity. When discharging to the common waste heat flue at the boiler house, the draft in the flue is 1.5 in. of water. A balanced pressure is maintained at hearth level in the soaking zone.

The waste-gas flue, includng the self-supporting steel stack, is lined with 6 in. of second quality firebrick, with all necessary insulation.

Control panel for the new slab heating furnace.

The flue was arranged so that waste gas could be discharged to the stack or to the waste-gas collecting flue. Particular attention was paid to elimination of high draft loss at intersections of flues, such as on the back of the furnace, recuperator, or stack. A main-control damper operated from a furnace pressure controller was provided in the single flue section. The damper was constructed of 25 pct Cr-12 pct Ni alloy sheet of double corrugated design with a cast frame. A high-chrome alloy, heat resisting, mushroom-type, shut-off damper was provided in the existing waste-heat-boiler collecting flue. The mushroom seat casting was installed on a cast monolithic base to resist shock incident to operation of the valve. A water-cooled stack damper was provided, studded to retain a covering of plastic refractory cement. The waste-gas flue damper and stack damper are individually operated by oil hydraulic pistons, located at the dampers and controlled by hand valves located in the waste-heat boiler house. A 2½-in. self-piloted, inspirator-type coke-oven gas burner was installed at the base of the stack.

The furnace was equipped with an exhauster-type fan for combustion air, which is suitable for operation at a maximum temperature of 900°F. The fan casing was covered with 2½ in. of high-quality plastic insulation.

Furnace control comprises an oil-operated system with all instruments and controls mounted on a centrally located panel, which includes a gas-air pressure indicator, soaking zone gas-air flow meter, top gas-air flow meter, bottom gas-air flow meter, furnace pressure recorder, soaking-zone temperature controller, combustion-air temperature controller, slab temperature control, gas flow-air flow recorder, furnace pressure control, soaking zone gas-air ratio control, top gas-air ratio control, bottom gas-air ratio control, top gas-flow manual control, bottom gas-flow manual control, and pushbuttons for temperature controls.

In operation, the gas flow to the top and bottom burner sections of the main heating zone is operated manually from the furnace panel or automatically by temperature controllers. The gas flow to the soaking zone is operated automatically by temperature controllers or manually through a push button on the panel. The air flow to each zone is controlled automatically or manually by gas flow-air flow ratio controllers located on the panel.

Furnace pressure is controlled automatically by operation of one main damper in the waste-gas flue. This controller is also located on the furnace panel and arranged so the damper can be manually controlled.

Temperature of combustion air as taken from the recuperator is automatically regulated through controlled additions of cold air by operation of a butterfly valve in the fan suction line.

An integrating and recording meter was provided to measure the total gas flow to the furnace and total air handled by the combustion-air fan.

The soaking-zone gas control valve and the air-temperature control valve are operated by reversing motors in conjunction with the temperature control instruments.

The ratio controllers, furnace-pressure controllers, and manually-operated draft valves are operated by hydraulic oil cylinders of sufficient size to permit close adjustment.

An existing gas-pressure control system was increased in capacity to accommodate the new, fourth furnace. The existing hydraulic oil system was also extended to accommodate the new furnace.

A radiation-type slab-temperature recording system was installed to record the top surface temperature of slabs leaving the primary heating zone.

X-Ray Fluorescence Analysis

° ° °

By J. L. Abbott

Application Engineer, Industrial X-Ray Div.,
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° ° °

Particularly suited to the quantitative analysis of high alloy steels and heat resistant and high temperature alloys, the X-ray fluorescence analysis method offers advantages not practical in the usual analytical methods. The application of this nondestructive procedure to specific analytical problems is discussed in this concluding part of a two-part article. Included also are X-ray fluorescence spectra patterns for 16-25-6 alloy and tungsten.

X-RAY fluorescence analysis provides a new means of analysis for the high alloy steels, and the heat resistant and high temperature alloys of the chromium-nickel-cobalt type, which have given difficulty in analysis by the usual chemical and spectrographic methods. Although the range of elements is necessarily limited by the wavelength limitations of the method, X-ray fluorescence analysis offers certain advantages not practical in the usual analytical methods. Percentages up to 100 pct can be readily analyzed.

Analysis of low percentages is limited by the relationship between background radiation intensity and the intensity of the line of the element involved. The effect of self absorption of the characteristic radiation of the element by the material of the sample is also a factor in determining the lowest percentages which may be practically analyzed. Samples in which the main constituent is a high density element, will absorb a higher percentage of the radiation involved than will be absorbed by the lighter element. Thus, for instance, nickel in aluminum alloy can be determined to a lower percentage than is possible in a silver or lead alloy, in which the absorption of the nickel K radiation is very high. Satisfactory analysis of 0.02, 0.04, and 0.06 pct Ni in an aluminum alloy has been made by X-ray fluorescence analysis. Relatively long counting time intervals (10 min) were necessary to distinguish between the line intensity and the intensity of the background.

In the first part of this article, THE IRON AGE, *October 28, 1948 the author described the principles associated with X-ray fluorescence analysis.*

Mr. Abbott, the author, is now management research engineer, Research and Engineering Div., A. O. Smith Corp., Milwaukee.—Ed.

In general, however, counting intervals of 1 min or less are sufficient. The background radiation intensity is counted and subtracted from the line intensity. Curves may be made by plotting line intensities (number of counts) against percentage analysis of samples. However, because of possible variations in counting rates, it is advisable to make direct comparison of the line intensities of the unknown samples with those of known standard samples, thus making the analysis on a direct comparative basis. The range of analyses between the standards is considerably greater than that required for spectrographic analysis.

Metallic samples are prepared in the form of flat specimens measuring approximately 31/32 x 1 3/32 in. The thickness of the sample may vary from about 1/16 in. (depending upon the density of the material) to about ½ in. One flat face is necessary, a surface ground finish being satisfactory.

Each sample becomes a secondary standard,

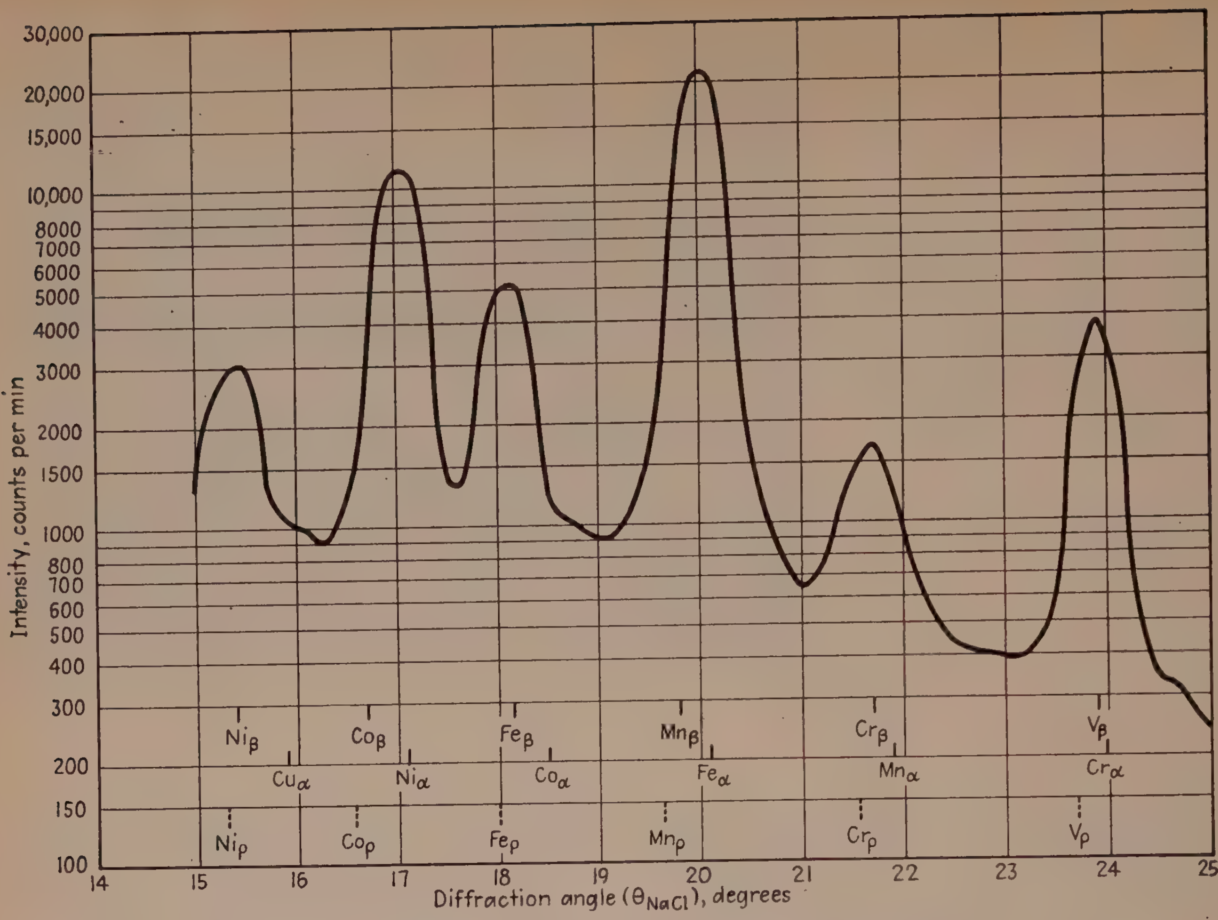

Fig. 6—X-ray fluorescent spectrum of (16-25-6) high alloy steel (K radiation).

and may be used to extend the supply of standards, since there is no change whatsoever in the sample caused by the analysis. Since the radiation covers a relatively large area of the sample (approximately ⅝ x ⅞ in. as viewed by the collimator) the effect of segregations and heterogeneity is not important as it would be in spectrographic analysis where a relatively small area is covered by the arc or spark.

Fig. 6 shows the positions and line intensities of the major components of chromium-nickel-cobalt ferrous alloy. This chart was made by counting the radiation intensities at 0.05° (2θ) intervals, and plotting the intensity (counts) v. the angular position of the Geiger Counter. It should be noted that the angle of the Geiger Counter, with respect to the collimated beam, is twice the angle between the beam and the surface of the crystal (2θ and θ, respectively).

Fig. 7 shows the *L* radiation pattern of tungsten. The intensities of the lines may be compared directly with those of the ferrous alloy in table I.

A discussion of the variables involved in X-ray fluorescence analysis will provide a better understanding of the possibilities and the limitations of the equipment. The variables involved include:

(1) The percentage of element in the sample.

(2) The absorption effects of other elements and particularly the major element in the sample.

(3) Air absorption effects.

(4) The reflecting plane spacing (d) of the diffraction crystal.

(5) The voltage (kvp) and the current (milliamperes) applied to the X-ray tube.

(6) The voltage applied to the Geiger tube.

(7) The Geiger Counter characteristics.

(8) Statistics of counting.

The percentage of an element in a sample determines the intensity of the characteristic fluorescent radiation of the element involved. The intensity of the characteristic radiation is—neglecting other factors—proportional to the percentage of the element.

The absorption of the fluorescent radiation from a given element is proportional to the atomic density of all other elements constituting the sample. This is particularly true of the major element. If the major element is low in density (low atomic number) its absorption of the secondary radiation of the element involved will be relatively low, and will not greatly reduce its intensity. However, if the major element is high in density (higher atomic number) the absorption of the secondary radiation from a given element in the sample will be relatively high. Lower density elements also absorb the secondary radiation strongly in certain wavelengths. This absorption effect is very marked in the region of the wavelength immediately shorter than the *K* absorption edge (*Ke*). Thus in a theoretical sample containing for instance arsenic and bromine, the bromine *K*α radiation with a diffraction angle of 10.64° would be absorbed strongly by the Arsenic *Ke* which occurs at 10.68°, (see table I).

The intensity of any radiation decreases as a power function of the distance traveled. Thus,

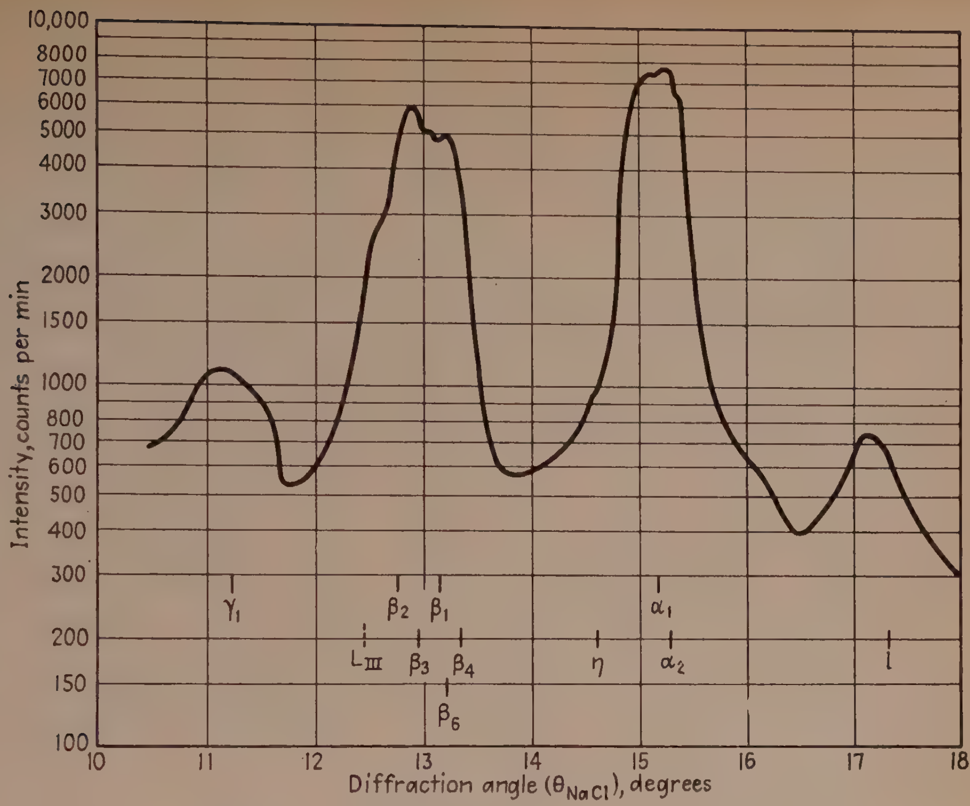

FIG. 7—X-ray fluorescent spectrum of tungsten (L radiation).

other things being equal, it is of advantage to have the distances between the X-ray tube target and the sample, and between the sample and the diffracting crystal and the Geiger Counter, as short as possible. However, the resolution increases as the distance increases, so it is necessary to compromise between resolution and intensity of the radiation.

Air absorption increases as the distance increases, but is not appreciable except for the longer wavelengths. However, air absorption is very high for wavelengths above approximately 3.3A. Thus, for fluorescence analysis of elements whose radiation is above this limit, it would be necessary to provide an evacuated system or one filled with a low density gas (such as hydrogen or helium). The absorption of wavelengths just below the 3.3A limit may be decreased by decreasing the length of the collimator. This also decreases the resolution; however, considerable gain may result, since the resolution of the longer wavelength radiation is relatively high because of the high dispersion angle.

The sine of the angle of diffraction of a given wavelength varies inversely as the distance between the atomic planes of the diffracting crystal. Thus, fluorite with an atomic plane spacing (d) of 1.94A (220 plane) has higher dispersion than rock salt with a (d) value of 2.820A (100 plane). This is evident from the Bragg formula:

$$n\lambda = 2\cdot d\cdot \sin\theta$$

where n = an integer (the order number of the reflection, λ = the wavelength of the radiation (in Angstroms), d = the atomic or crystallographic plane spacing, and θ = the diffraction angle (the angle between the X-ray beam and the crystal plane, or the angle between the plane and the diffracted beam).

A comparison of the relative angular positions of the diffracted beam for a given radiation, when rock salt and fluorite are used, will illustrate this, see tables I and II. Thus, chromium radiation (Cr K) α will be diffracted to 23.97° and 36.27° by rock salt and fluorite, respectively, and molybdenum radiation will be diffracted to 7.24° and 10.58° (θ angles).

The intensity of the diffracted radiation will be dependent also upon the reflecting power of the crystal plane involved. Some planes reflect more strongly than others, so it is advantageous to select a crystal of an easily available and stable material which has the proper crystallographic plane spacing as well as a high reflecting power. This requires careful selection of crystals and careful preparation of the reflecting surfaces. The intensity of the reflected radiation is dependent upon the methods of cleaving, grinding, and polishing the surface.

The intensity of the incident radiation is dependent upon the current applied to the X-ray tube. Increasing the current increases the intensity, the practical limit being the wattage limit of the tube. The potential applied to the tube determines the minimum wavelength produced and so determines the wavelength of the secondary radiation produced, and hence the atomic number of the heaviest element which can be analyzed.

However, there is a practical limit to the effective voltage which can be applied in producing a given wavelength of fluorescent radiation. Higher potential will produce a greater amount of radiation of shorter wavelengths, which in turn will for the same current setting, produce a greater intensity of secondary radiation. A saturation point is reached, however, above which increasing potential has no effect. As the voltage increases the penetration of the incident radiation increases because of the shorter wavelengths, but the longer wavelength fluorescent radiation emitted is completely absorbed by a definite thickness of the overlying material of the sample. Consequently there is a definite limit to the intensity produced by increasing potential.

The voltage applied to the Geiger Counter tube greatly influences the counting rate. The tube should be operated at a voltage well up on the Geiger plateau, which is approximately flat for a range of a several hundred volts. Higher voltages cause the counter to become unstable and will increase the counting rates very rapidly, but will not permit usable reproducible results. Lower voltages drop below the Geiger plateau, and greatly affect pulse size and usually produce a decrease in counting rates. The Geiger tube utilized in the fluorescence analysis unit operates at approximately 1400 v. The tube is volume sensitive, that is, radiation entering any part of the tube will produce counting. This permits utilization of the entire area of the collimated beam.

The entrance of an X-ray quanta into the gas filling of the Geiger counter tube causes ionization of the gas and permits a pulse of current to pass. Since the quanta enter the tube at irregular intervals, the pulses of current are at random. As in counting any random phenomenon, a sufficient number of pulses must be counted to reduce the probable error from counting statistics to a suitable degree. It has been determined that by taking approximately 4500 counts above the background, in any given interval, this error can be reduced to 1 pct.[4]

In summary, it may be said that the newly developed X-ray equipment utilizing high intensity X-ray tubes, and high quantum efficiency Geiger Counters, has made X-ray fluorescence analysis possible on a practical basis. This method provides a means of rapid, quantitative analysis. Approximately 3 to 5 min. per element will be required after the sample is prepared. The analysis consists of inserting the sample, setting the crystal and the Geiger Counter at the proper angles to detect the proper K (or L) radiation from the element desired, measuring the intensity of the radiation with the Geiger Counter for the required time, and comparing the number of counts with that of a standard sample of somewhat similar composition. Operation is of such simplicity that a highly trained operator is not required, the average laboratory technician being capable of operating the equipment, once the analytical method has been established.

The author expresses appreciation for the assistance given by J. S. Buhler, F. A. Behr and Miss M. Berry in preparing this article.

The accuracy to be expected varies somewhat with the nature of the sample, but optimum accuracy, in the order of one part in 10,000 of the element present, may be obtained under favorable circumstances. The analysis is independent (except for absorption effects) of the state of the element in the sample, whether it be free, combined or alloyed. While the method is still comparatively new to industry, it is expected that it will soon be utilized along with the conventional chemical and spectrographic methods for routine quantitative analysis.

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Rust Inhibitor Speeds Wire Drawing

A PHOSPHATE material, which inhibits rust and helps lubricate wire in process, has permitted a 20 to 25 pct increase in the speed of drawing fine high-carbon wire according to metallurgists at the Aliquippa, Pa., plant of Jones & Laughlin Steel Corp. A sharp reduction in damage to dies and to wire and fewer delays for replacing and restringing dies are also reported.

The material, in use for almost a year and a half, is an amorphous metaphosphate compound marketed as Banox by Calgon, Inc., Pittsburgh. The film deposited on the wire is not water soluble and provides a degree of lubrication for the wire in subsequent drawing. It has been found that less lime is required when the material is incorporated in the cleaning operation.

At the Aliquippa Works, coils to be wet-drawn are dipped successively in an 8 to 10 pct H_2SO_4 pickle; a water rinse; a 1 pct Banox solution for 4 min; another water rinse; and a bath of 8 to 9 pct hydrated lime. The coils are dried in a flash baker and passed on for final reduction on Vaughn wet-drawing machines. The feed coils are high carbon, usually 0.028 to 0.066 in. Finished diameters are on the order of 0.007 in. This wire is commonly used in making wire rope and other products in which uniformity is important.

Cost of the material varies with the wire diameter, but has been found to run from 15 to 35¢ per ton of wire treated.

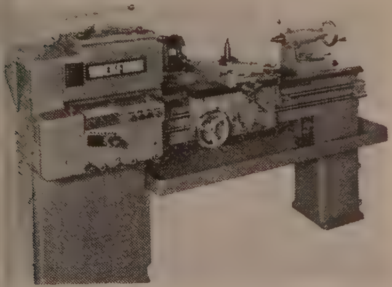
Copper-flashed wire is also successfully rustproofed and trouble with sulfiding is said to have been practically eliminated.

New Production Ideas

A general purpose lathe, a plate stretcher-leveller, a band filing machine, equipment for aluminum plate trimming, a powder metal press, drilling and tapping machines, turning rolls, a gear loading device, hydraulic drives, a high speed counter, an electric pyrometer, and spiral flute countersinks are new and improved products described this week.

eneral Purpose Lathe

A MEDIUM size, general purpose lathe of new and im- roved design, known as the Rock- ord Economy Lathe, has an all- eared headstock and a range of 12 pindle speeds, all quickly adjust- ble by conveniently located levers. o insure maximum accuracy and ng life, the spindle has been made rom a high alloy steel forging, ounted on Timken zero-precision earings. The spindle nose has a o. 1 tapered key drive. Headstock ears are cut from pre-heat treated eel gear blanks, annealed, hobbed nd shaved. Gear lubrication is rovided by an immersion and oil- lash system. Overall design of



e headstock permits all types of the operations, including high indle speeds and the use of ngsten carbide cutting tools. *ckford Machine Tool Co. For ore information, check No. 1 on e attached postcard.*

ate Stretcher-Leveller

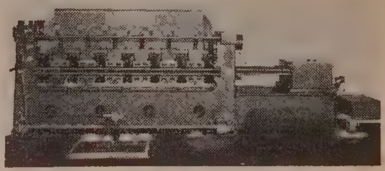
A PLATE stretcher-leveller has been designed that is a self- ntained oil hydraulic type, has capacity of 1000 tons, and ndles plate and sheet up to 11 ft ide and 31 ft long. A bed of elded construction absorbs all etching forces, the foundations having to carry only the dead weight of the machine. Two gripheads are provided, the main one actuated by the hydraulic stretching cylinder, the position of the second adjustable to compensate for the varying length of the plates. A straightening device in front of the gripheads is provided to flatten a warped or bent plate end. A plate support of five movable carriages makes loading and unloading simple. All movements and actions are performed by remote control from the operating panel. *Hydropress, Inc. For more information, check No. 2 on the attached postcard.*

Band Filing Machine

FILE finishing nine times faster than hand filing is claimed for a new 7-in. capacity floor model band filing machine, designed for operation from a sitting or standing position. The table is 39 in. high and 18 in. square. In operation, the work and not the file is guided to facilitate handling of a variety of parts. Optimum cutting speed for any material is available with a surface travel of file band range between 50 and 250 fpm. Bar frame guide support has been eliminated in this design to allow unimpeded work area around file band. Tilting mechanism permits accurate level, miter or angle cutting. Band saw length is 120 in. and three sizes are available in widths of ¼, ⅜ and ½ in., in six types of cut and with flat, oval or round shape. *DoAll Co. For more information, check No. 3 on the attached postcard.*

Aluminum Plate Trimmer

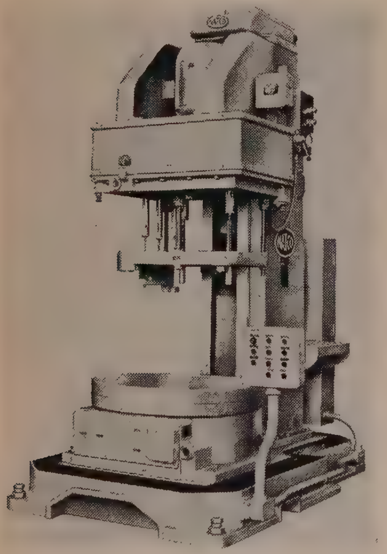
EQUIPMENT for flattening, edge-shearing and cutting aluminum plate is available in two lines; one for ½ x 104 in. x 33 ft and the other for 0.200 x 104 in. x 16 ft plate. Lines have operating speeds of 100 to 300 fpm. Features include feeding tables, backed-up leveller, pinch rolls, edge trimmer, up-cut shear and gage table. On the heavy line, plates are loaded singly by a vacuum lift unpiler and after being processed they are removed singly by a similar vacuum type piler. On the back-up type roller-leveller, the bottom nest of rolls can be dropped out of bending position or returned without disturbing the set of the machine. The top nest of rolls have special designed back-up roller nests, which operate through mechanism to flex the top work rolls. Edge trimmers are rotary shear type. Knives may be adjusted in two planes. Reciprocating guillotine scrap cutters are



provided operating from a separate drive motor. The machine can be used as a gang slitter by locating the knife arbors in the heads. Each line has two operating stations from which the whole line is controlled electrically. *Loewy Construction Co., Inc. For more information, check No. 4 on the attached postcard.*

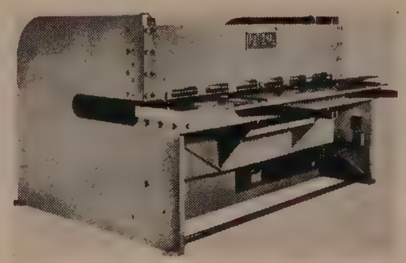
Drilling and Tapping Machines

MODELS C2A, C3A and C4A Holesteel vertical machines are designed for drilling, boring and tapping, and are of both single spindle and fixed-center multiple spindle construction. An electronically controlled hydraulic feed system is provided for infinitely variable feed selection within the specified range. Where provided, change gears permit spindle speed variations. Electrical push button control provides for routing and setup control from a central station. A small area base is supplied for adjustable table applications or for stationary fixtures mounted on the base. Larger area bases are suitable for rotating and sliding type fixture applications. Models C2A (illustrated) and C3A machines can be supplied with adjustable knee type tables. On single spindle heads, sliding gears that are lever operated allow a selection of seven spindle speeds. *National Automatic Tool Co. For more information, check No. 5 on the attached postcard.*



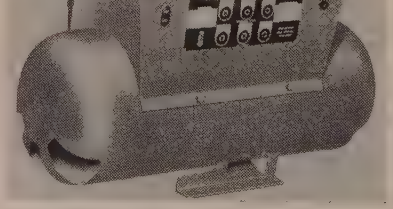
Squaring and Gap Shears

A NEW line of steel squaring and gap shears of 3/16 and ¼ in. capacities in 6, 8, 10, and 12-ft lengths has been developed. The shears are of all steel construction and the table and lower knife bar of one piece construction, giving added rigidity to the shear and permitting the table and knife bar to move together when adjusting knife clearance. Hydro-electric drive gives the shear the proper number of strokes at sufficient power to cut at its rated capacity. The hydraulic pump also furnishes power to operate the hydraulic holddowns. The shear can be actuated by a foot treadle extending across the full length of the shear or with an extension foot pedal. Knives are high carbon-chromium alloy and have four cutting edges. A hydraulic relief valve protects the shear from overload. *National Machinery & Equipment Co. For more information, check No. 6 on the attached postcard.*



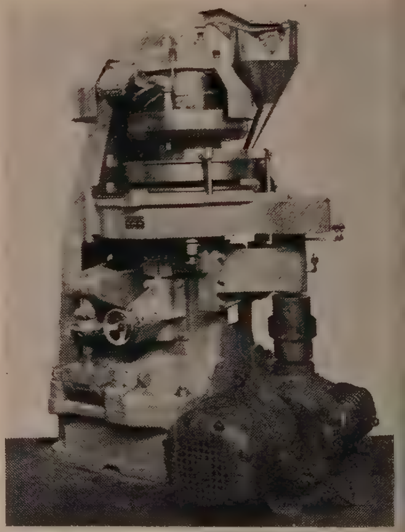
Dc Arc Welders

THE major design feature of a line of dc arc welders is a one dial simplified control panel that carries a series of outlets, each one marked for an electrode of different diameter. The operator simply plugs into the proper outlet, then dials for any required minor adjustment in current. Moto-driven dc units are available in 150, 200, 300, 400 amp capacities in a new compact 3600 rpm model and in conventional 1750 rpm type. Engine-driven welders include 200 amp units powered by air-cooled Wisconsin engines, and 300 and 400 amp sets driven by Chrysler industrial engines. *Metal & Thermit Corp. For more information, check No. 7 on the attached postcard.*



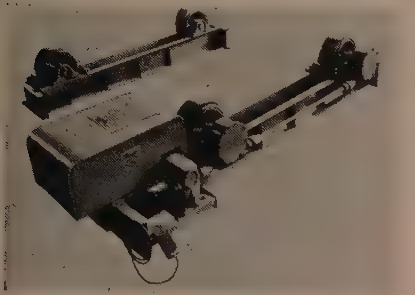
Powder Metal Press

POWDER metal parts production at speeds from 65 to 91 pieces per min, depending on the pinion used, is claimed for a new 30-ton Model No. 230 rotary press. Two sets of pinions are furnished. Normally equipped with a 12-station head, production of parts up to 2½ in. diam with a die fill of 4¼ in. is said to be possible. A greater number of punch stations can be provided for special jobs to increase production. Flanged parts can also be produced through the combination of a mechanism for moving the upper pressure roll up or down in a vertical plane and a special arrangement of cams. Powered by a 20-hp constant speed motor, the press applies the 30-ton pressure from both above and below simultaneously. *F. J. Stokes Machine Co. For more information, check No. 8 on the attached postcard.*



Turning Rolls

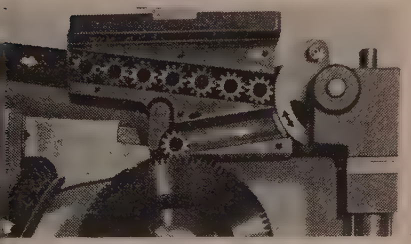
CAPABLE of carrying heavy loads with less handling and giving longer, trouble-free operation, a new and improved line of turning rolls help produce cleaner nd faster welds by allowing all velds to be made in the downhand osition. Features include anti-riction, self-aligning bearings in oth the power and idler rolls ends,



nd a combination steel and bronze vorm wheel. Operation of the rollers is simple, the weldment being laced on the rollers and rotated round the welder or automatic velding head at the desired welding speed. Self-propelled turning olls on four wheel carriages are lso available. *Ransome Machinery 'o. For more information, check Vo.* 9 *on the attached postcard.*

Gear Loading Device

A LINE of automatic loading devices for gear finishing nachines automatically reduces idle ime per machine to 2 sec per gear r less, and can be used on rack nd rotary type gear finishing mahines. Elimination of manual hanling makes unnecessary the use f arbors for mounting gears and inions between centers. Special neumatic headstock centers are



vailable in which the center acts an arbor. Stripping from the nter is also automatic. Producon rates of 300 pinions per hr per achine are being obtained with ese automatic devices. The loads are of three major classes: avity chute feed and unload type, r smaller gears; chute feed plus dexing mechanism with positive ading; jaw type loaders for larger gears and cluster gears. *Michigan Tool Co. For more information, check No.* 10 *on the attached postcard.*

Spiral Flute Countersinks

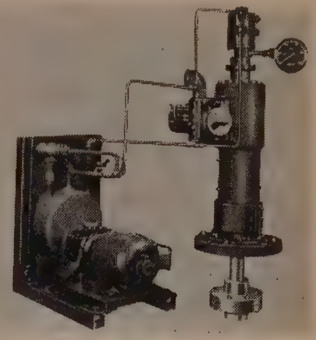
A LINE of high speed steel, spiral fluted countersinks has been designed to cut smoothly and reduce chatter. Three spiral flutes increase the area of contact between the cutting edge and the work, and cut with a shearing action. Cutters are made in 3/8, 1/2, and 5/8 in. diam sizes with 1/4 in. shanks and 3/4 and 1 in. diam with 1/2 in. shanks. They are available for 60, 82, 90 and 100° included angles and others. *Aero Tool Co. For more information, check No.* 11 *on the attached postcard.*

Low Voltage Controllers

A NEW line of low-voltage controllers are designed for controlling squirrel-cage, wound-rotor, synchronous, or multi-speed ac motors up to 800 hp or dc motors up to 350 hp. Common applications for which they are desirable are pumps, mixers, grinders, mills, and similar drives in the heavy industries. The new controllers include in one unit the conventional equipment required to start, stop, and control motors, and a completely integrated draw-out air circuit breaker that provides adequate short-circuit protection. Serving also as a circuit isolating device, this draw-out air circuit breaker is interchangeable, thus preventing production delays. The controllers are 90 in. high and can be lined-up with other control and switchgear equipment or placed beside the machine. *General Electric Co. For more information, check No.* 12 *on the attached postcard.*

Hydraulic Drives

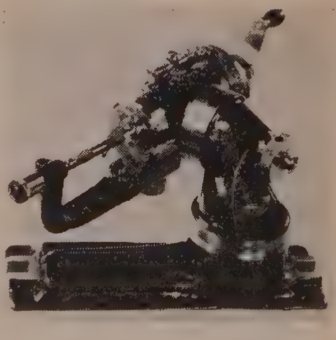
A LINE of application engineered hydraulic drives uses pumps and motors of the Rotocycle design as the hydraulically coupled activating mediums. Rotocycle construction features high efficiency, large volume displacement, quiet, non-pulsating operation, and durability. Motors may be remotely located from pumps and the hydraulic circuit can be arranged so that several motors are supplied with fluid pressure from one central pump-in source. Constant predetermined speed is maintained by the Hydro-syn governing system that can be used to maintain any predetermined condition of speed, torque, pressure, volume or liquid



level. The variable speed hydraulic drives can be furnished in speed ranges up to 5000 rpm and in ratings from fractional to 125 hp or greater. *Hydraulic Div., Rockwell Mfg. Co. For more information, check No.* 13 *on the attached postcard.*

Grinding Fixture

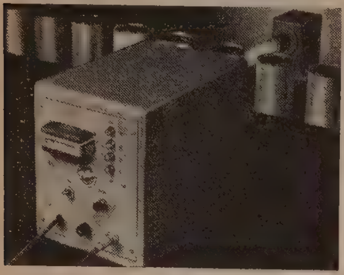
FOR grinding small cylindrical work such as plug gages, taps, and multi-splines, a grinding and indexing fixture, Model B, incorporates accurate positioning features and a special tail stock with a spring-loaded adjustable center. The arm is removed when not needed. Maximum distance between centers is 2¾ in. and maximum diameter is 2½ in. The use of this fixture eliminates the installation



of expensive equipment, it is reported. *All Tool Co. For more information, check No.* 14 *on the attached postcard.*

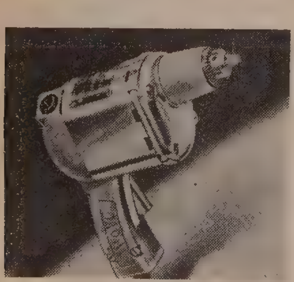
High-Speed Counter

COUNTING at rates up to 6000 per min is possible on a new high-speed photo-electronic counter for industrial applications where mechanical counters do not count accurately or wear rapidly because of counting speed. Model 310 is a unit that includes photoelectric detector, one electronic ten division and a six-digit electromechanical register. Light source is in a small separate housing to provide mounting flexibility. Through the use of the electronic counter head, counting speed of the mechanical counter is scaled down by a factor of 10 to increase reliability and accuracy. Last digit of the number is registered on neon glow lamps of the electronic counter and the rest of the digits are indicated on the mechanical register, providing a maximum registration of seven digits. It is claimed small objects as well as closely spaced parts can be accurately counted as the beam width is ¼ in. and the beam responds to light changes as small as 25 pct. *Potter Instrument Co., Inc. For more information, check No.* 15 *on the attached postcard.*



Electric Drill

AVAILABILITY of an English made ¼-in. ball bearing electric drill for production work is announced. It is designated Type EG2C and is designed for drilling in confined quarters. Low weight, short overall length and offset spindle are design characteristics. The drill is suitable for a variety of bench accessories including drill stand and bench grinder clamps, and also it is designed for operations such as valve guide cleaning and decarbonizing. Full load speed is 1400 rpm and net weight is 4-⅜ lb. *Fred L. Stuart. For more information, check No.* 16 *on the attached postcard.*



High Speed Lift Truck

HIGH speed loading and unloading of highway transport trucks and railroad cars can be facilitated with a newly designed gasoline powered fork-lift truck. Trucks are 1000 and 2000-lb capacity with full pneumatic tires that allow fast travel on uneven road or platform surfaces. Design features include all welded one piece body frame construction of heavy gage steel stampings; four cylinder water cooled engine developing 26 hp; 61-in. turning radius for maneuverability in narrow-aisle or congested warehouse; hydraulically operated lift and tilt of load-carrying mast. Controls have automotive type grouping. Total weight of the 1-ton capacity Transitier is approximately 3000 lb, and both models are available in 5, 7, and 9-ft lift heights. *Transitier Truck Co. For more information, check No.* 17 *on the attached postcard.*

Core Solder

GENERAL, electrical and electronic soldering is possible with the new Resin-Five core solder. The solder is non-corrosive, non-conductive, and virtually odorless and will solder zinc, brass, nickel silver, nickel-plate, copper, and ferrous alloys. Resin-Five is a resin involving chemical interaction at the anhydride structure of the resin itself, converting it from a naturally inactive state to an active state, yet preserving its original non-corrosive and electrically non-conductive physical character. *Kester Solder Co. For more information, check No.* 18 *on the attached postcard.*

Electric Pyrometer

FOR semi-automatic program control, for heat cycles or completely automatic heat cycle program control, a portable electric pyrometer recorder and controller is arranged so that six points of heat to 2200°F can be recorded or controlled. Portability permits use for control of temperature of heating processes and setup and for experimental operations in the field, shop and laboratory. It may be used with induction heaters for preheating and stress relieving and it may also be used with other systems employing resistance heating. *Electric-Arc, Inc. For more information, check No.* 19 *on the attached postcard.*

Jack

A 15-TON capacity Shorty jack has been designed for repairing cranes and low-set loads. It is 7 in. high and weighs 22 lb. The Shorty is a ball bearing screw jack and utilizes a ball thrust bearing. The jack housing is one-piece malleable iron and features machined, cut and heat-treated gears. A 1⅛x36 in. long pinch bar end-lever makes operation quick and

ıdling easy. *Duff-Norton Mfg. . For more information, check . 20 on the attached postcard.*

elder Tip Holder

VELDER tips are ejected easily from a new water- led ejector type holder, by a ht tap on the head, thus allow- quick replacement. A feature of holder is a positive leak-proof, laceable water seal of Sirvene ber. The head is of Ampco metal, aluminum-bronze alloy. The ctor sleeve is stainless steel. ter connections permit use of t-off couplings or extra heavy e. *Ampco Metal, Inc. For more ormation, check No. 21 on the at- hed postcard.*

olley Wheel Bearings

ROLLEY wheel bearings that retain the lubricant under operating conditions have been igned. The grease retaining ele- nt consists of a double labyrinth l and adequate lubricant cavity. ease is introduced through the rication fitting in the hub. Space ler the wheel cover provides an ple storage cavity. Lubricant ily travels into the antifriction ring, but is prevented from es- ing by the double labyrinth. *vis B. Webb Co. For more in- mation, check No. 22 on the at- hed postcard.*

mond Disk Wheel

NEW diamond disk wheel features a diamond face that may replaced at a low cost, making it sible to increase efficiency and er costs on grinding operations uiring the use of diamond eels. The wheels may be used on inary bench grinders as well as bide tool grinders. *K-E Indus- s. For more information, check 23 on the attached postcard.*

e Fitting

SELF-FLARING, leakproof tube fitting, called Uniflare, be taken apart and recon- ted many times, it is claimed, hout weakening the seal or dam- ng the flare. The fitting consists body and nut. Under ordinary nch force the thrust collar in nut shears off and clamps onto tube to form a perfectly sealed t. Tube cracking is eliminated through elimination of the preliminary flaring operation and flaring tools are not required. Other features are listed as 37° flare for maximum strength, inverted type joint which provides multiple sealing surfaces, and tube support designed to minimize vibration fatigue. *Scovill Mfg. Co. For more information, check No. 24 on the attached postcard.*

Grinding Belt

FOR drying grinding operations involving heat, a new cloth belt, Resinall Metalite, has been developed. The thermo-setting resins used in the Resinall Metalite do not melt or flow with severe heat and retain their vise-like grip on the cutting position to deliver faster, cooler cutting performance longer, it is reported. The heat proof bond is combined with the company's patented Durabonded process to assure grain-grip, extra strength, and to retard loading. The belt is available in 24 to 120 Norton Alundum grit. *Behr Manning. For more information, check No. 25 on the attached postcard.*

Laboratory Hot Plate

THE new H-5 laboratory hot plate aids in extraction, evaporation, and overnight concentration of analytical samples. Plate surface measures 5x22½ in. Flasks may be placed side by side for unobstructed view of the action taking place. The H-5 is of a 1300 w capacity operating on 115/230 v and 60 cycles. Plate temperatures are controlled with a knob connected to an input controller. *Lindberg Engineering Co. For more information, check No. 26 on the attached postcard.*

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Tools

WRENCHES, chasers, dies, reversible ratchet drills, jacks and other tools are listed in 216-page catalog. Turning tool holders, lathe attachments, tool cabinets, knurling tools and many other items are included. *Armstrong Bros. Tool Co. For more information, check No. 27 on the attached postcard.*

Pressure Switches

BELLOWS and piston actuated pressure switches for machine tool and welder control service are described in bulletin. Other bulletins discuss weld and sequence timers, resistance welder contactors and heavy duty dc controls for mill auxiliaries and cranes. *Square D Co. For more information, check No. 28 on the attached postcard.*

Ram Bender

PORTABLE, hydraulic, ram type bending machine is described in bulletin 34. Up to 2-in. extra heavy weight steel pipe can be handled. Coils, return bends and special curves can be bent, and dies are available for angle iron, channels and other shapes. *Wallace Supplies Mfg. Co. For more information, check No. 29 on the attached postcard.*

Tank Heads

DISHED and flanged pressure tank heads in round, ellipsoidal and hemispherical shapes are described in catalog. Manholes, stampings, fittings and other products for boiler and tank manufacture are also discussed. *Commercial Shearing & Stamping Co. For more information, check No. 30 on the attached postcard.*

Heat Treating Furnace

ELECTRIC heat treating furnace for the 350° to 2000°F range is discussed in bulletin. Usable muffle size is 12x12x12 in. Second bulletin gives information on an electric salt pot furnace for temperatures up to 1650°F. *Gilbert S. Simonski Co. For more information, check No. 31 on the attached postcard.*

Preformed Wire Rope

INFORMATION on the advantages of preformed wire rope is given in bulletin. Internal lubrication, ease and safety of handling, service life, lay, types of terminals which can be used and other topics are covered. *Macwhyte Co. For more information, check No. 32 on the attached postcard.*

Hot Plate Presses

HOT plate presses for plywood are discussed in Bulletin 200. Number of openings, pressure, closing speed and other characteristics of the units can be furnished to meet the requirements of the job. *Williams-White & Co. For more information, check No. 33 on the attached postcard.*

Spindle Nose

TAPER key drive spindle nose for fast, accurate and positive placement of lathe chucks, face plates and fixtures is discussed in bulletin. Safety, accuracy, labor-saving and other advantages are described. *R. K. LeBlond Machine Tool Co. For more information, check No. 34 on the attached postcard.*

Blackening Processes

BOOKLET gives information on processes for blackening copper and copper alloys, iron and steel, and zinc and zinc alloys. Procedures, protection afforded by the coatings, uses, and the shades of color obtainable are described. *Enthone, Inc. For more information, check No. 35 on the attached postcard.*

Machine Tools

CATALOG G-48 gives specifications on shapers, milling machines and precision lathes. Lathes are 10, 11 and 12-in. models. Accessories and attachments for the units are also described. *Sheldon Machine Co., Inc. For more information, check No. 36 on the attached postcard.*

11/4/48

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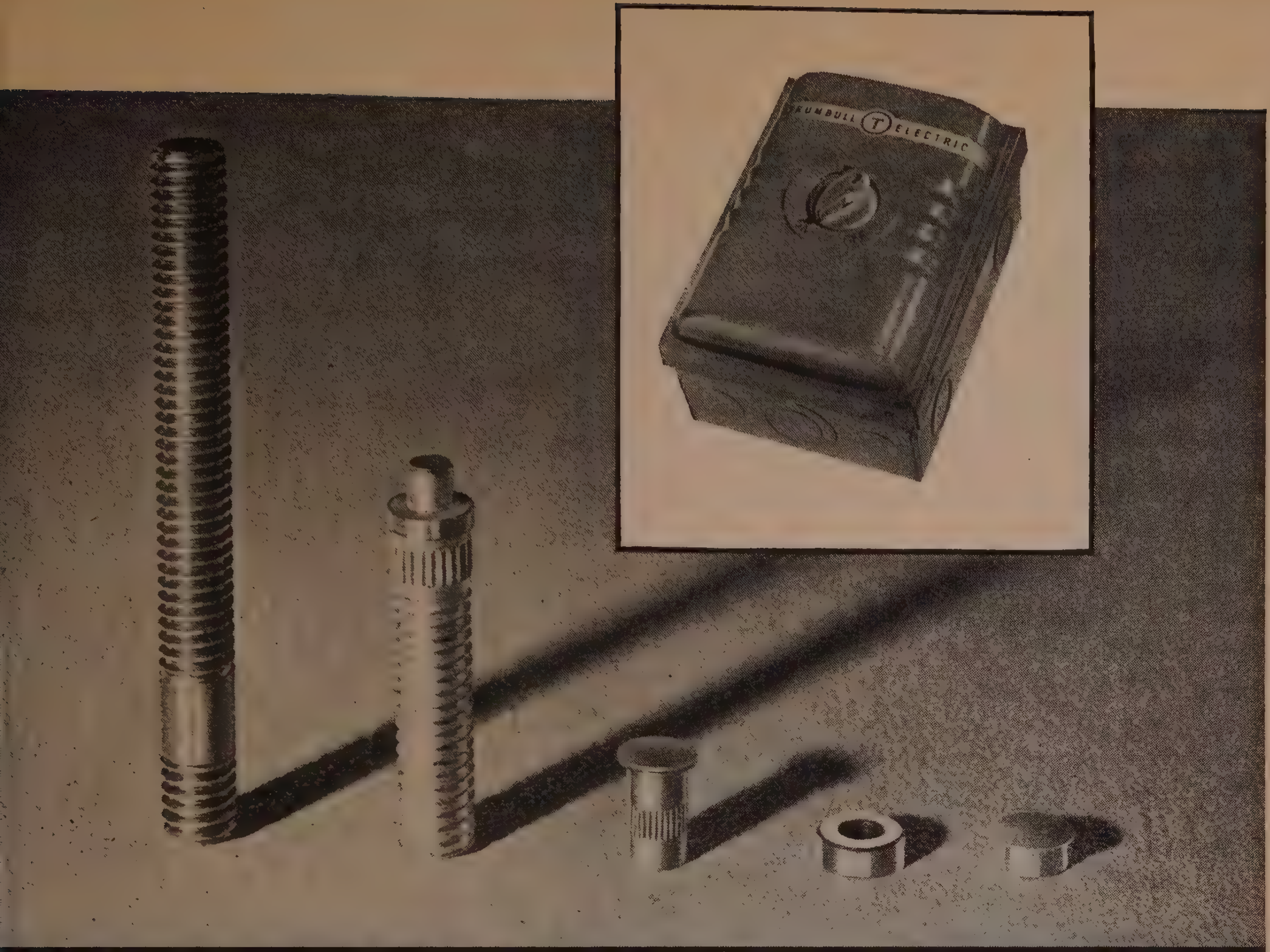

A CASE HISTORY SHOWING THAT

REVERE FREE-CUTTING COPPER SAVES MONEY

your product requires machined copper parts, it will pay ou to investigate savings in machining costs made possible Revere Free-Cutting Copper Rod. We would suggest that you e trial runs of this metal to prove what it will do under own shop conditions. That was the procedure followed The Trumbull Electric Mfg. Co., Plainville, Conn., with results:

art #18107 and 18108, contacts for the Type D switch illus- d, were designed around this alloy. Trumbull states: "On these parts we found we could make them in one operation ad of two. That is, due to the smooth free cutting of the al, it was unnecessary to perform a facing operation . . . screw machine foreman advises that, in his opinion, both parts could be made four times as fast as out of ordinary rolytic copper rod."

3731, 60 amp. post stud.—5,760 pieces run in 19.6 hours no machine down-time; 10,425 pieces of ordinary copper run in 66.6 hours with 11.8 hours machine down-time. In tion to the extra time required, three sets of dies were used he regular rod. "The savings of the free-cutting material ordinary copper were figured at $1.81 per thousand, in- ng in these costs both material and direct labor."

16552, space washer. "Savings per thousand over electro- copper were 77¢. This figure included the material difference and direct labor. In addition, there was an 18% saving in machine down-time."

#K-60-1A, 70-200 amp. stud. "The use of Free-Cutting Copper Rod on this part very definitely increased production and practically voided machine down-time."

In a letter to Revere, Trumbull added: "In general, at least for most of the parts we have used, we find that there is at least a 25% saving in machine time of free-cutting over regular copper. In addition, the workers are enthusiastic about this material, particularly when running studs, because of the fact that it is no longer necessary for them to keep a constant close watch on the machine to see that the turnings do not become tangled up with the moving parts of the machine."

The Trumbull experience is being duplicated in other machine shops. If you have not tried this Revere Metal, we suggest you get in touch with your nearest Revere Sales Office.

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WALTER G. PATTON

• Research leads Dodge engineers to new truck design . . . Electrically-controlled hydraulic service brake on all models . . . Cadillac uses slipper-type pistons.

DETROIT—After several years of research, Dodge engineers have come up with a new design for a door-to-door delivery truck that is unusual in many respects. Most sources agree the Dodge Route-Van is the first really new vehicle to come out of Detroit since the war.

The new Dodge van is unique in these respects: (1) The floor is a full 10 in. lower than other door-to-door vehicles, a change which has been made possible by the new chassis design. (2) The new truck offers 76 in. interior height without exceeding the usual overall height for such vehicles. (3) The engine is mounted on the right side instead of in the middle. (4) All services—oil, water and gasoline—are readily available at the front of the car. (5) Body construction is so unusual that an entirely new plant has been tooled to build the new vehicle.

The new Dodge Route-Van offers greatly increased visibility and unusual ease of entrance and exit. It handles as easily as any passenger car this writer has ever driven. Turning radius is 19 ft.

The adaptability of the new Route-Van for all kinds of door-to-door delivery and home service operations is probably greater than that of any vehicle on the road today, according to most informed sources. Detroit expects that Chrysler's competition will watch with growing interest this vehicle which was designed from bumper-to-bumper to handle the house-to-house deliveries that are made by hundreds of thousands of United States business establishments every day.

The new vehicles are being offered in 102, 117 and 142 in. wheelbases with 7, 9½ and 12½ ft all-steel bodies. Payload capacities range from 1075 to 4500 lb.

Lowering of the floor by 10 in. was made possible by the use of a driving axle which operates separately from the load-supporting axle. Sole function of the driving axle is to drive the wheels. The differential assembly is connected to the wheels by open type axle shafts equipped with universal joints and is sodidly mounted in rubber on the chassis frame. It moves up and down with the frame and the body but not with the wheels.

The length and angularity of the axle shafts change with the deflection of the springs. The two axle shafts "telescope" to compensate for changes in load. The two universal joints provide for changes in angularity.

The offset engine on the right side of the vehicle permits use of front-end space for gas, oil and water intakes as well as the oil level indicator.

The larger models are equipped with Chrysler's fluid drive, a desirable feature for minimizing gear shifting. Also, according to Dodge engineers, starting is made easier on slippery pavements. Maximum flexibility is provided both in traffic and on grades, they contend.

An electrically-controlled hydraulic service brake holder is available on all models. This makes it unnecessary for the driver to reach over for the hand brake at each stop. The driver merely flicks a switch on the steering column bracket to apply the service brakes. The brakes then remain locked until released.

THE new Dodge Route-Van is powered by the 6-cylinder, 230 cu in. Dodge truck engine. This engine develops 102 maximum gross hp at 3600 rpm.

It is expected that provision is being made to handle some of the stampings for the new job at the Dodge stamping plant now being erected on Mound Road.

The new engine in the Cadillac 1949 models culminates 10 years of intensive research effort and product development.

Back in 1938 Cadillac engineers set out to build a more compact and more powerful V-type engine. The first wooden model was made that year. Final preparations for building a test engine were completed in 1941. These plans were shelved on Pearl Harbor day.

In 1945 design studies were resumed. Two engines were built—an L-head type and a valve-in-head type. Based on its exhaustive experimental work, Cadillac selected the valve-in-head engine in preference to an L-head type. The possibility of using a high compression ratio to achieve substantially improved economy of operation was a primary consideration in this decision. The 1948 model used an L-head motor.

Between 1946 and 1948, it is reported Cadillac built 25 test engines. After exhaustive laboratory tests, the new 1949 engines were run over a million test miles at the GM proving ground.

The new Cadillac engine develops 160 hp. It operates at 7.50 to 1 compression ratio, but this can be increased as higher octane fuels are available. Cadillac engineers claim a 15 to 20 pct increase in fuel economy at 7.5 to 1 compression ratio for the average driver.

An interesting characteristic of the new engines is their steady fuel consumption ratio over the entire driving range. This contrasts with most of the auto powerplants which use excessive quantities of fuel at high speed.

In the new Cadillac engines, the combustion chambers have been completely redesigned. A larger cylinder bore combined with shorter

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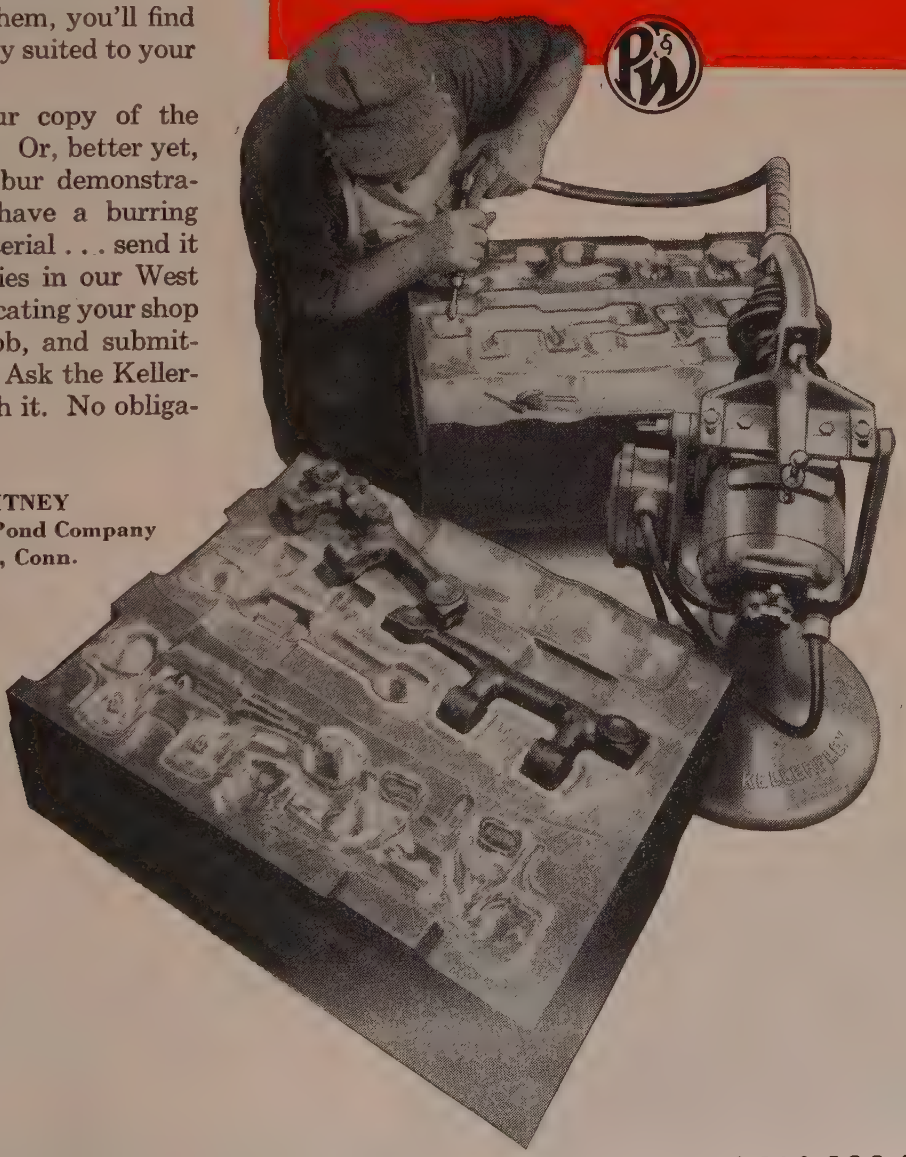

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piston stroke reduces the piston velocity substantially. This design also results in a decreased amount of cylinder wall being exposed to the combustion flame and reduced heat losses. In addition, the new overhead valve mechanism is lighter and more compact than the previous model.

CADILLAC is now using a newly designed "slipper-type" piston which makes possible the use of shorter connecting rods. In the new pistons, the unused metal at the sides of the piston skirt has been eliminated to reduce friction and decrease reciprocating weight.

A new, integral casting, comprising water pump housing and inlet and outlet water manifolds, eliminates all hose connections except those running to the lower and upper radiator tanks. Eighteen quarts of water coolant is circulated by the pump from the bottom of the radiator to the lower manifold, thence through the cylinder block and head water jackets and out through the upper manifold to the upper radiator tank. A bypass in the casting between the upper and lower manifolds allows the coolant to recirculate through the cylinder block and heads until it reaches the temperature required to open the thermostat valve.

Cadillac's hydraulic valve silencers have been redesigned for the new engine to assure quieter operation.

The shorter piston stroke reduces the frictional power loss by cutting the piston travel approximately 20 pct. At 4000 rpm the new Cadillac pistons travel only 2400 ft per min compared with 3000 ft per min in the predecessor model.

The main crankshaft bearings have been increased from 3 to 5 and placed in heavy bulkheads which help form a more rigid crankcase structure.

A reduction in air cleaner and exhaust system noises has been achieved in the new design. The new engine uses a single accessory drive belt.

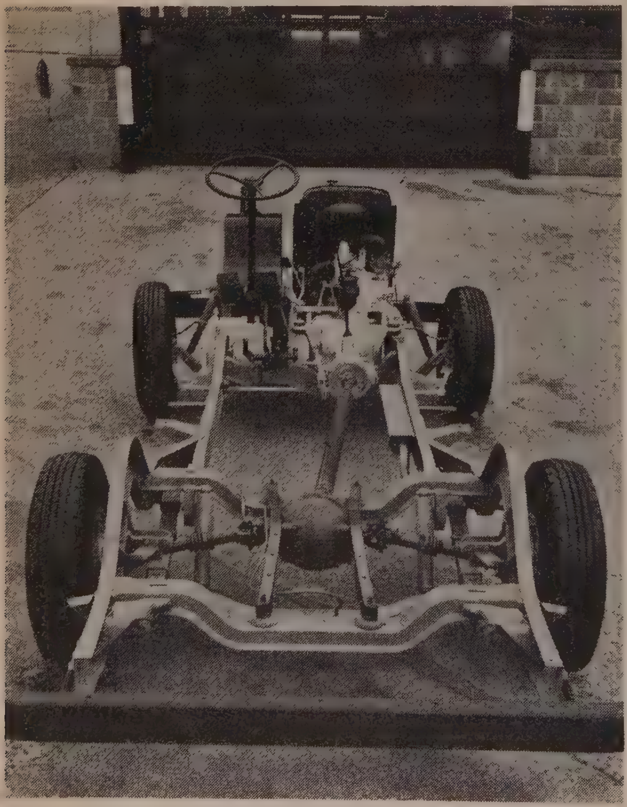
AT the moment it is not possible to make a detailed comparison between the new Cadillac engine and the high compression engine introduced by Oldsmobile several weeks ago. There are many similarities between the new engine—also some important differences. Both engines utilize high compression ratio. Modifications of the head will make it possible for each to operate at compression ratios up to 12.5 to 1, it is reported. Each engine is compact and considerably shorter than earlier models. Oldsmobile has released few details as to ignition, crankshaft and pistons used on the new powerplant.

The 1949 Cadillac features a longer hood line and a new grille treatment in which the grille extends across the front fenders to the wheel opening. Interiors are new. The instrument panel has been redesigned (principally to eliminate glare). New door moldings and trim are used.

The controversial upsweep in the rear fenders has been retained. Sources close to Cadillac confirm the fact that a lot of the current stories about the unpopularity of the Cadillac fender design are unfounded. There has never been any vehement opposition from Cadillac owners to this design, it is reported. On the contrary, Cadillac owners appear to like the instant recognition which is afforded from the side. They also approve the prominent warning signal that is given off at each side when the brakes are applied. Another advantage of the present design, according to Cadillac owners, is that it gives the driver an excellent guide line when the car is being backed out of a driveway.

Contrary to earlier rumors which appeared prominently in a section of the trade press and daily papers, Cadillac has never given serious consideration to changing its rear fender design.

During the first 9 months Cadillac produced 52,070 cars. Despite steel limitations, this is a rate higher than any similar period in the company's history. Currently the company has 114,000 unfilled orders on hand.



HERE'S HOW: *Redesigning the chassis has permitted Dodge truck engineers to lower the floor of its new Route-Van by 10 in. Chassis features include a 13in. kick-up at the rear of the frame; two rear axles in which one is entirely load-supporting and the other load-moving; an offset engine in the front to permit greater use of front end space.*

Discusses New Process For Making Fuel Gases

Toledo

• • • **The new catalytic** cracking process for fuel gas production was described by T. F. Loughry at the Fuel Symposium held by the Philadelphia Section of the Assn. of Iron and Steel Engineers, at its November meeting The meeting will be held at the Engineers' Club in Philadelphia.

Mr. Loughry has been associated with Surface Combustion Corp. for the past 24 years.

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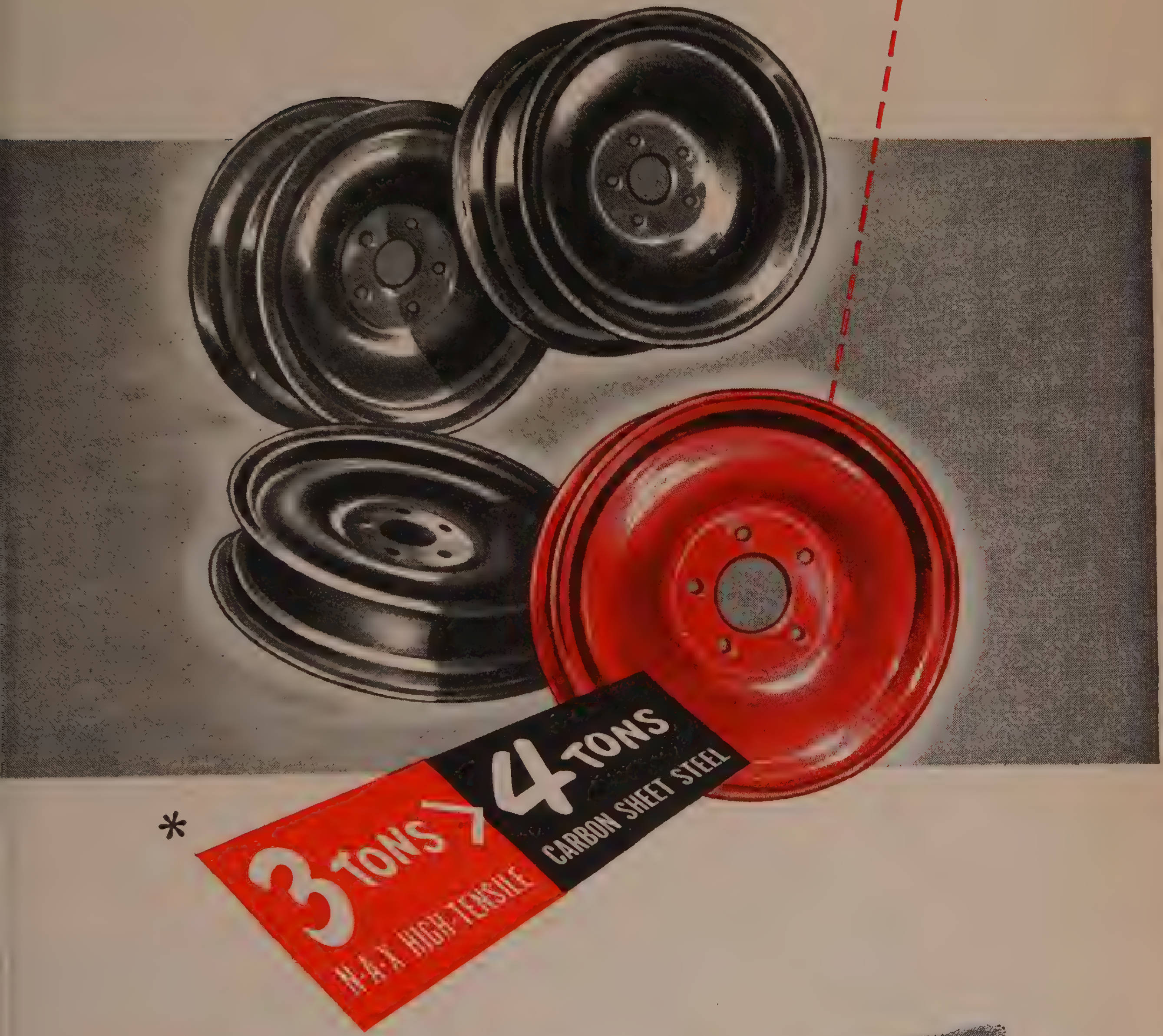

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Washington . . .

EUGENE J. HARDY

• Delivered price hearings open next week . . . Schedule emphasizes small business . . . Capehart Subcommittee expects FTC agreement with eventual findings . . . Economic concentration study shelved.

WASHINGTON — The long-awaited congressional hearings on delivered pricing finally will get under way next week, but it's beginning to look as though anything the hearings produce will be a terrific anticlimax for business men.

The hearings, which will be held under the aegis of Senator Capehart's Trade Policies Subcommittee, have been publicized by the subcommittee staff and, in turn by the press, as few other issues have been.

Hardly a week has gone by, in the past several months, that either Mr. Capehart or William Simon, subcommittee counsel, has not succeeded in churning up the issue of delivered pricing v. f.o.b. selling through such publicity devices as speeches, reports, press statements, issuance of questionnaires to businessmen, and advisory council meetings.

Senator Capehart's original plan was that the subcommittee's first task was to launch a widespread "educational" program setting forth the issues in the basing point controversy. But the "educational" program was administered with such huckster-like zeal that there can now be hardly a business man alive who has not longsince wearied of the subcommittee's publicity efforts and who does not now fervently wish that Congress would stop talking and start acting on the subject.

The very energy with which Mr. Capehart's subcommittee swung into its task has resulted in some criticism of the group's methods. Some observers said a circus-like atmosphere pervaded the whole operation and pointed to such things as the large number of ponderous press releases and the subcommittee's weighty questionnaire—15,000 copies of which were sent to trade associations, chambers of commerce, labor unions and others affected by recent court decisions, upholding the Federal Trade Commission's position that f.o.b. mill selling is the only method that industry can use and feel fairly safe from prosecution.

THIS questionnaire resulted from the subcommittee staff's feeling that the time allotted for filing a report was such that the widespread effect of the various court decisions would have to be appraised in a relatively short time. Therefore, it was decided to use a rather unusual approach, since it was obvious that the public generally was unaware of the importance of the issues at stake. In other words, the subcommittee embarked on an educational program. The questionnaire was a part of that program.

Trade associations were particularly perturbed over the questionnaire, since if they provided some of the information requested they might open themselves to antitrust prosecution. These associations can now rest easy, for THE IRON AGE has learned that despite a relatively high rate of response, the subcommittee does not intend to analyze these responses in detail. Some of the responses will undoubtedly be introduced as evidence, and will also provide a method of culling potential witnesses.

There is little question but what trade associations are greatly interested in the Capehart study and want to do all they can to help. For example, the Trade Assn. Executives in New York City are meeting this week (Nov. 4) to hear a discussion by a panel of experts on the topic "The Legal Aspects of Trade Association Cooperation with the Capehart Committee."

THE subcommittee staff now believes that it has succeeded in keeping the problem before the public. It is felt that the initial stage of the educational program has been completed.

While the subcommittee maintains that it still has an open mind on the subject of remedial legislation—if such legislation is found to be necessary—it is possible to ascertain the direction the subcommittee is heading. For one thing, subcommittee staff members told THE IRON AGE that they feel certain that the Federal Trade Commission will "go along with" whatever the subcommittee eventually comes up with. This is not too surprising, since it is an open secret in Washington that FTC feels the courts may have gone a little too far in several decisions (e.g., the cement and rigid conduit cases), and that it is now on the spot.

The subcommittee believes the FTC's circuitous statement designed to clarify the commission's position (THE IRON AGE, Oct. 21, p. 117), but which had just the opposite effect, was an admission that the commissioners felt the courts had gone too far and also an attempt to say that the FTC would not go quite that far in its interpretations.

Generally speaking, it would not be too surprising if the subcommittee eventually recommended legislation which would place specific definitions of such things as price and permitted pricing practices in the statutes under which FTC operates. FTC would issue rules and regulations using

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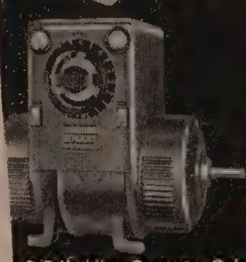
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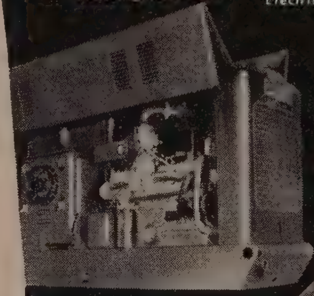
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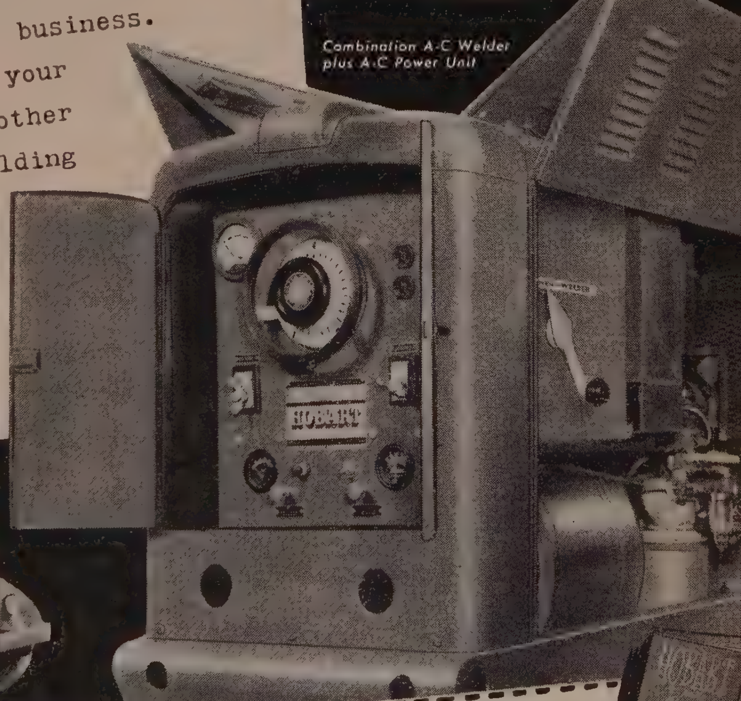

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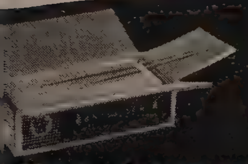
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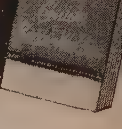

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Address____ these definitions, and if business and industry still were not pleased, access to courts and to the Congress would always be available.

SOME thought has also been given to legislation which would require FTC to prove its case on the basis of the weight of evidence, rather than the mere existence of any or substantial evidence. Admittedly, this would clip the wings of FTC, but it would also reopen literally thousands of cases in a number of administrative agencies. It would represent a basic change in administrative law procedures, and for this reason, is likely to fall by the wayside.

The hearing schedule calls for 8 days of hearings beginning Nov. 9. Hearings will also be held during December and early January. The subcommittee hopes to complete its public hearings in January and file its final report, with appropriate recommendations, by Mar. 1, 1949. The resolution which authorized the establishment of this subcommittee requires a report to be submitted by Mar. 15.

The second portion of the Capehart resolution which sets up the subcommittee calls for an investigation of economic concentration. But the subcommittee, at a meeting this summer attended by Senators Capehart; Brewster, R., Maine; Hawkes, R., N. J.; Johnson, D., Colo., decided that the delivered price problem was of primary importance and the study of this problem will be completed first. This means that with a Mar. 15 deadline, economic concentration will not be restudied at this time. An extension of the resolution will probably be requested in order to take up the general study of economic concentration.

AT the first series of delivered price hearings, Nov. 9 and 10, the subcommittee will hear attorneys and economists. Sometime during these 2 days the subcommittee also hopes to hear representatives of small business and Dept. of Defense officials who are expected to discuss the possible effect on national defense planning from the standpoint of plant location, buying practices, etc.

On Nov. 11 and 12, representatives of the steel industry—primarily small producers—will be heard; steel consumers will also be heard at this time. The emphasis will be on small business throughout the hearings, according to Mr. Simon, who told THE IRON AGE that we will be "reaching down to the ultimate consumer as close as possible."

The beet sugar industry will be heard on Nov. 16 and 17. This industry is concentrated in a small area, yet has a nationwide market and is in competition with imports. It uses a zone pricing method, which also comes within the subcommittee's scope, despite the conception in some quarters that the subcommittee was confining itself to problems springing from the abolition of basing point systems.

CEMENT producers and users are expected to appear on Nov. 18 and 19, which should wind up the public hearings until some time in December.

At the hearings in December and January, other affected industries will be heard from. It is also likely that the representatives of nation's railroads and the Interstate Commerce Commission will be called, since it is felt that exclusive f.o.b. mill selling might have a very depressing effect on rail revenue.

The committee's 47-man Advisory Council, composed of businessmen, farmers, economists, and other national leaders, will meet again next month and is expected to issue its report early in January. This report is expected to figure largely in the January public hearings.

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BY J. R. WILLIAMS

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Washington

• • • **Herbert L. Tigges,** second vice-president of the American Society of Tool Engineers, has accepted an assignment as adviser and consultant to the National Security Resources Board in connection with the work of the manufacturing division.

Mr. Tigges is a vice-president of Baker Brothers, Inc., Toledo. His immediate work with the National Security Resources Board will be in connection with the placement of "phantom" war orders in the machine tool field.

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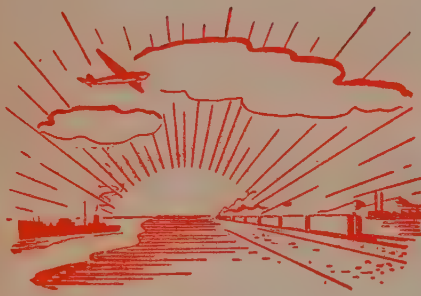
West Coast . . .

ROBERT T. REINHARDT

• Severe shortage of hydro-electric power in Pacific Northwest temporarily bars new industries . . . No prewar estimate could possibly foretell change that came within less than a decade.



PORTLAND—Imagine the embarrassment and count the red faces and painfully swallowed words of prewar power authorities as the Pacific Northwest faces a serious electric power shortage this winter.

Both private and public hydroelectric engineers seem to agree that the total generating capacity in the Pacific Northwest of about 3,900,000 kw is some 150,000 kw short of meeting present peak demands. Dr. Paul J. Raver, administrator of the Bonneville Power Administration states that he has recently rejected applications for industrial power totaling 250,000 kw. In his control of the immense output of the Bonneville and Grand Coulee power plant he naturally holds the balance of power in a wild and tempestuous see-saw game that has been played for high stakes these past 10 years and has completely reversed itself from the prewar position when it was predicted that there would be an embarrassing surplus to the present postwar position when there is a desperate shortage.

Looking further into the future Allen A. Smith, general counsel of Pacific Light & Power Co. and Mountain States Power Co., substantial private operators, predicts that 1¼ million additional kw will be needed in the Pacific Northwest by 1952 and that by 1956 the demand will be doubled.

N. F. Hatch, operating engineer of the Washington Water Power Co., dominant private producer in the inland empire out of Spokane, has stated that a critical water shortage could result in a deficiency of as much as 1.3 million kw next year.

Before the unanticipated wartime industrial development and population growth, and especially the installation of the power absorbent aluminum reduction plants and other electrolytic major developments, the private companies were about ready to throw in the sponge and surrender to federal, municipal and other government sponsored authorities. Yet in the short passage of 5 or 6 years three privately owned power companies in Oregon are now expending $71 million of their own funds on current projects designed to develop no more than 163,800 kw by 1952. Private and municipal plants in the State of Washington have construction programs in progress to cost $202½ million.

When the Bonneville and Grand Coulee Dams were erected during the yardstick era of the New Deal in the '30's and the Bonneville Power Administration was set up under the aggressive and forthright administration of Dr. Paul J. Raver, he and his associates were desperate and defiant in their determination to find a market for the seemingly astronomical quantities of hydroelectric power that would be available in the hitherto placid Pacific Northwest.

Elaborate surveys were made and a keen and well informed promotion and development section was set up, to encourage the intensive use of electricity for mineral reduction, for railroad operation, for domestic, agricultural and household use, for industries small and large, for any and every purpose where electric power could be sold and used. Defiantly the Bonneville Power Administration let it be known that it would insist on supplying some 50 pct of the load of the Pacific Northwest, and private and existing plants could serve the balance.

CONSERVATIVE Oregon was appalled and suspicious, in the fear that long established private power companies would be forced out of business, or forced to sell to the government, as in the Tennessee Valley, and that eventually the great empire of the Columbia Basin would be servile to and completely subject under the Dept. of Interior, and distant and idealogically suspect influence of and from Washington. Although the Bonneville Power Administration was better informed, more intelligently staffed and more farsighted, even though at times visionary, in its aims, it was not welcome in those days at chamber of commerce or municipal or regional promotion assemblies.

Even the most optimistic prewar promoter and empire builder had no conception of the changes that were to come within less than a decade. Even the six additional generators scheduled to be installed at Grand Coulee Dam, two each in 1949, 1950 and 1951 bringing the total there to 18, will not suffice to supply the demand. It is now generally and universally agreed that they cannot build dams fast enough at Umatilla (McNary), Hungry Horse, Albeni Falls, Oxbow or even in forbidding Hell's Canyon on the Snake. California is short and limited in its water supply but its 2.2 million kw of public and private installed hydroelectric capacity are pieced out by nearly 2 million additional kw of steam generators, powered by oil and natural gas. The Pacific Northwest has abundant and well distributed water, but the rivers themselves and current development and construction costs are so magnificent in their proportions that apparently only the federal government can tackle the problem of supplying the unbelievable future demands

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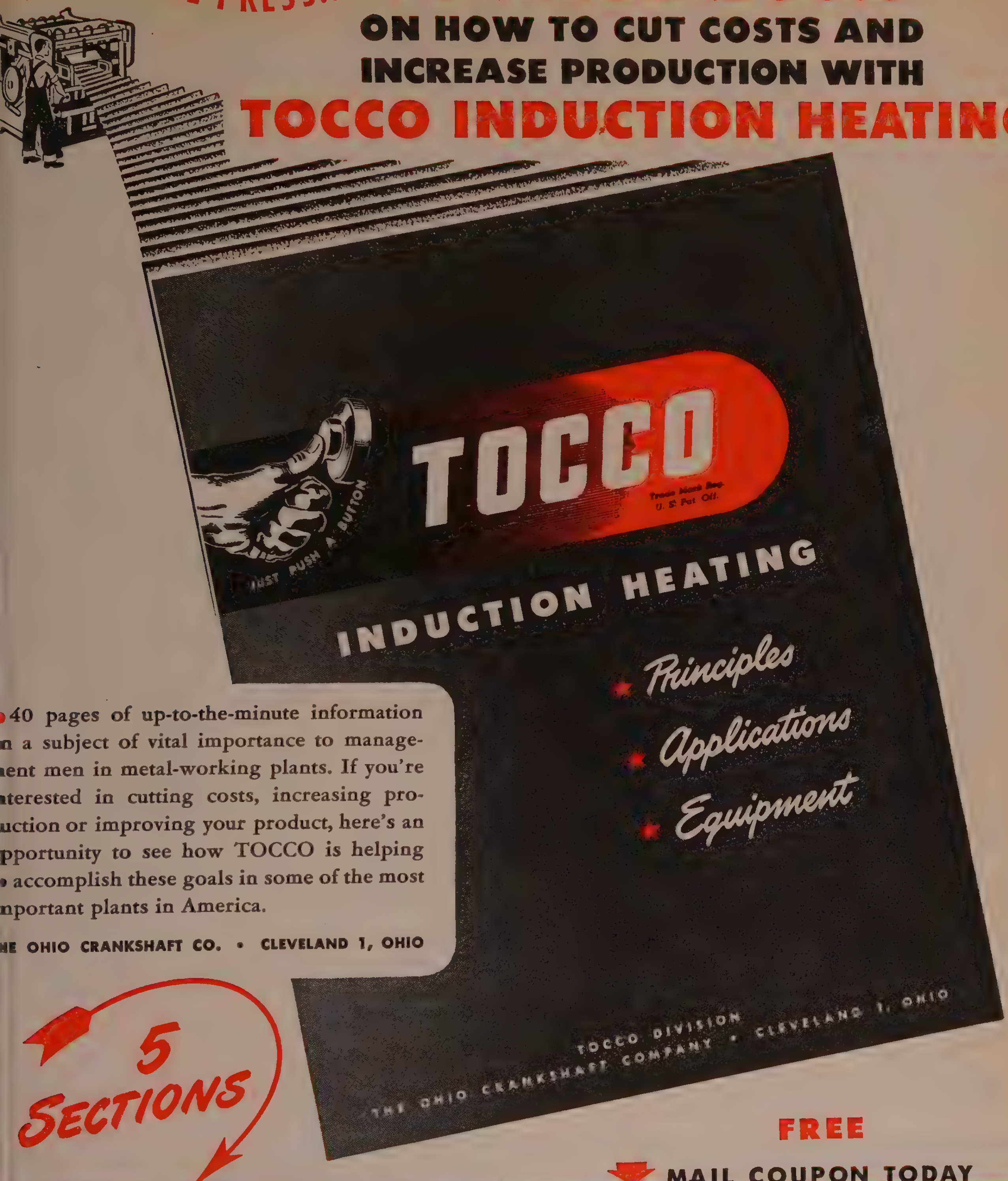
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for hydroelectric power in the Pacific Northwest.

Nor is this necessarily a philanthropic and charity project. Sale of Bonneville-Grand Coulee power returned $9,136,181 to the U. S. Treasury for the year ended June 30, 1948. Cumulative surplus net power revenues from the government investment on the Columbia River reached $32,690,325 as of the same date after provision for all expenses of operation, including maintenance, depreciation and interest, according to the auditors.

These figures are based on prewar building costs and the mysteries of federal accounting and it is furthermore probable that each new dam and project will be more costly and less favorable per kilowatt of power produced.

Builds Single Passenger Helicopter; No Fuselage

Seattle

• • • **A single** passenger helicopter without fuselage has been developed by Horace Pentecost here and is being perfected by Hoppi-Copters, Inc. In its present form the craft is virtually a platform with powerpack and rotors. Inventor Pentecost is now in England at the request of the British government to test one of the Seattle-made planes for civilian and military use.

It is powered by a two-cylinder, two-cycle, horizontally-opposed, double-throw crankshaft engine that can develop 35 hp at 4500 rpm. Forced-air cooling is accomplished with an air blast which is pushed upward by a flywheel fan. The engine is fitted with an aluminum crankshaft, and drives two counter-rotating co-axial, 15 ft rotors through a system of bevel-cut gears and steel shafting. One rotor is about 24 in. above the other, and the craft is 8 ft high.

The plane can lift more than its own weight, since its weight is 175 lb and it has lifted 176 in flight tests. It is designed, however, to carry 250 lb. The test pilot, M. L. Ramme, has made more than 100 flights. Designers predict that the plane, when refined, will have a maximum speed of 90 mph, an estimated ceiling of 12,000 ft, and can cruise up to 3 hr. It will require as a landing field only a 30 ft square.

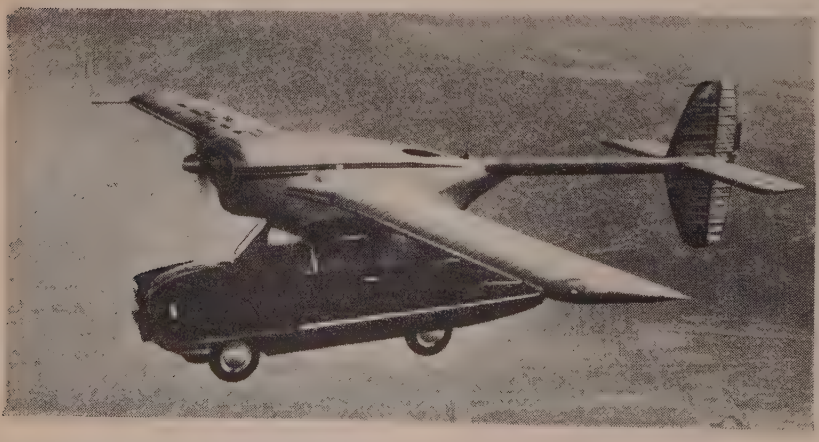
Nonferrous Output Down

Salt Lake City

• • • **Intermountain** nonferrous metal production will register a decline for October because of the shutdown of Kennecott Copper's Utah division. The Bingham Canyon mine, which produces about 30 pct of domestic copper, was closed down tight by a strike of 311 haulage employees.

The strikers, members of the Brotherhood of Locomotive Firemen and Enginemen, are demanding a wage increase to bring them up to the same level as operators of trains which haul the ore from the mine to the concentrating mills at Magna and Arthur. This would involve a wage boost two to three times the amount granted to other employees of the company.

FLYMOBILE: *Some flight testing and only minor engineering modifications remain before this flying automobile will be ready for production. Over $800,000 has been spent on this model for which T. P. Hall has acquired all rights for further development from the Consolidated Vultee Aircraft Corp.*



Designs Low Priced Car For Sale on West Coast

Seattle

• • • **A new automobile** is being produced at Renton, Wash., the Mustang, designed and built by Roy McCarty, who has 30 years' experience in the automotive field. Only the aluminum body for this new "teardrop" model is made locally. Other parts and accessories are shipped to Renton for final assembly. Pacific Car & Foundry Co. builds the body. The Mustang is designed, according to Mr. McCarty, for people who want a big automobile and are willing to do without some of the luxuries of the conventional car. It is priced to sell in this area for $1,235 plus tax.

Powered by a four-cylinder Hercules engine, it has a 102-in. wheel base and stands 5 ft, 1 in. in overall height. The body is designed to carry six people, two in front and four in back, the rear seat being 5 ft, 9 in. wide. The driver and one passenger sit on individual front seats, which turn on swivels. Behand the rear seat is a long shelf. A luggage compartment is 4 ft wide and 4 ft deep. The engine is placed under the center of the car and slightly to the rear.

It is designed so that it can be removed in less than 10 min and another power plant can be installed in about equal time. Gas, oil and battery may be checked through a door on the left side of the car. Mr. McCarty states that his Mustang will go about 68 miles per hour and will run from 25 to 30 miles on a gallon of gas.

Builds Uranium Pilot Mill

Salt Lake City

• • • **A uranium pilot** mill in White Canyon in southeastern Utah's San Juan County, is to be constructed for Vanadium Corp. of America under negotiations completed with the Atomic Energy Commission. According to AEC officials, the pilot mill will be built at a cost of $200,000 and go into operation next summer.

AEC officials also announced that they expect to lease to Vanadium Corp. their uranium-vanadium mill at Durango, Colo.

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Because of its fabricability, ductility, ease of assembly and installation, and for many other reasons, the metal working industry is constantly finding new uses for MICHIGAN WELDED STEEL TUBING. Whether you form and machine the parts in your plant or order them prefabricated by Michigan, you will find this tubing exceptionally uniform in structure and adapted to reworking by any production process.

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Michigan STEEL TUBE *PRODUCTS CO.*

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d, Dayton, Ohio—Dirks & Company, Portland, Oregon—James J. Shannon, Milton, Mass.—Service Steel Co., Los Angeles, Calif.—American
Cleveland, Ohio—Drummond, McCall & Co., Ltd., Toronto, Canada.

PERSONALS

• **Carl J. Murray** has been appointed general superintendent of Jessop Steel Co., Washington, Pa. Mr. Murray had formerly been connected with Colorado Fuel & Iron Corp. and Crucible Steel Co. **Ellsworth E. Seitz** has been named director of personnel relations. He had formerly been engaged in personnel work at the Chevrolet plant in Buffalo. **Edwin C. Thomas, Jr.,** has been made superintendent of the bar mills. He previously served as assistant superintendent of the rolling mills at Atlas Steels, Ltd., and earlier was a roll designer at Universal-Cyclops Steel Corp. **James O. McDowell** has been named superintendent of the sheet mills. He was formerly associated with International Nickel Co. and Wheeling Steel Corp.

• **Arden A. Freel** has been appointed superintendent of the yards and transportation department of the South Chicago plant of Carnegie-Illinois Steel Corp. Mr. Freel joined this U. S. Steel subsidiary plant in 1936 and for the past two years has been assistant superintendent of the west mills department.

• **T. S. Shore** has been elected president of Eagle-Picher Co., Cincinnati, and **J. M. Bowlby,** chairman of the board. **Joseph Hummel, Jr.,** who has been associated with the company for 57 years and board chairman since 1941, vacated that office and has been named honorary chairman. **Elmer Isern,** formerly vice-president of Eagle-Picher Mining & Smelting Co., has been elected president of that subsidiary, and Mr. Bowlby has been named chairman of the board.

• **Harry K. Ihrig** has been made vice-president and director of laboratories, Globe Steel Tubes Co., Milwaukee. Previous to his association with Globe, in 1934, Dr. Ihrig had been engaged in engineering research in the petroleum industry. **Lee Mullen** has been promoted to the position of vice-president in charge of sales. Previously Mr. Mullen served in the capacity of general manager of sales.

• **R. G. Ullman** has been appointed sales manager, West Steel Casting Co., Cleveland. Mr. Ullman joined West Steel in 1946. Prior to that he was associated with American Car & Foundry Co.

EDSON W. FORKER, president, Chemical Plants Div., Blaw-Knox Construction Co.

• **Edson W. Forker** has been named president and **George E. Kopetz** and **Ralph E. Moser,** vice-presidents of the chemical plants division, Blaw-Knox Construction Co., Pittsburgh. Mr. Forker joined Blaw-Knox in 1927. He has managed the chemical plants division since its formation in 1939. Mr. Kopetz joined the company in 1939. Mr. Moser joined the chemical plants division in 1942 as manager of construction.

• **Edward X. Hallenberg** has been named assistant director of Westinghouse Research Laboratories, Pittsburgh. **Frank Paeske** has been made manager of miniature lamp sales for Westinghouse Electric Corp., Bloomfield. **G. H. Grossnickle** has been named manager of the meter division of Westinghouse at Newark, N. J. **William A. Hayes** has been named section manager in the electronic tube sales department.

• **C. R. Kammerer** has resigned his association with the Hercules Steel Products Corp., Gallion, Ohio, of which he has been executive vice-president. He has been connected with the corporation in an executive capacity since 1945.

• **T. C. Ballou** has been appointed sales agent in New York and **R. M. Hoel** has been transferred from the Pittsburgh to the New York district office as sales agent, both representing American Car & Foundry Co. in the northeastern railroad area. Mr. Ballou has been with ACF since 1936, specializing in welded products and tank cars. Mr. Hoel joined the sales department of the company in 1946.

• **William F. Smith,** former engineering director of the Manhattan Project, war-time research unit of the Carbide & Carbon Chemicals Corp., has joined the U. S. Testing Co., Inc., Hoboken, N. J., to organize a new engineering inspection service in conjunction with building and building material. Mr. Smith served as president of Oklahoma Testing Laboratories, Oklahoma City, for 16 years and left this company to take part in the atomic research project.

• **Tudor A. Wall** has joined Kaiser Co., Inc., Oakland, Calif., as administrative assistant to the vice-president and general manager.

• **N. J. Kenny** has resigned as president of Ohmer Corp., Dayton, a subsidiary of Rockwell Mfg. Co. Mr. Kenny returns now to Rockwell, serving in an executive capacity with headquarters in Washington, D. C. Prior to coming to Dayton, Mr. Kenny was assistant to the president of Rockwell in Pittsburgh and previously had been president of National Meter Co., also a division of Rockwell. **James E. Ashman,** vice-president of the Rockwell Mfg. Co., is in charge at Ohmer, pending the appointment of Mr. Kenny's successor.

• **Alton H. Hole** has been promoted from assistant general manager to general manager, Highland Park operations, Ford Motor Co. **Stanley W. Ostrander** has been made manager of operations of the Lincoln-Mercury Div.

• **Frank F. Ford** and **Clement N. Page** have been appointed sales representatives for the company's Nailable Steel Flooring. Mr. Ford, who has his headquarters in Atlanta, has been connected with the Alloy and Stran-Steel divisions of the company. Mr. Page has his headquarters in Philadelphia. He had formerly been associated with the Evans Products Co.

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RAILROAD MOTOR CARS and STANDPIPES

A. H. BEHNKE, vice-president, Hotpoint, Inc.

• **A. H. Behnke** has been elected vice-president in charge of materials, Hotpoint, Inc., Chicago. This department is newly-created and Mr. Behnke is the first company officer to head it.

• **Paul L. Palmerton,** assistant to the president of Western Electric Co., Inc., New York, has been named to the newly-created post of comptroller of the company's Purchasing & Traffic Div. Mr. Palmerton joined Western Electric in 1929 and served as foreign manager of Electrical Research Products, Inc., then a company subsidiary. He has since been European manager and after ERPI merged with the parent company in 1940, manager of the sales department, service manager, radio merchandise manager, assistant manager of the Radio Div., and then assistant to the president.

• **Victor E. Dolan** has been appointed special representative, with headquarters in Chicago, of the Cleco Div., Reed Roller Bit Co., Houston.

• **R. G. Jeter** has been appointed general counsel of the B. F. Goodrich Co., Akron.

• **James E. Cochran** has been appointed industrial engineer, Electricweld Tube Div., Jones & Laughlin Steel Corp., Pittsburgh. Mr. Cochran joined J&L earlier this year and served on the staff of the chief engineer.

• **George H. Sahler** has been appointed manager of marketing research for Trumbull Electric Mfg. Co., Plainville, Conn. Mr. Sahler had previously been associated with General Electric. **William A. Edwards** has been named manager of switch, breaker, control sales of the company. Mr. Edwards joined Trumbull in 1924. In 1942 he became manager of the Kansas City office and in 1943 he was made southwest district sales manager. **Yale T. Chaney** has been appointed manager of distribution systems sales. Mr. Chaney joined Trumbull in 1937 in the Engineering Dept. in Ludlow, Ky. In 1945 he became Trumbull's resident engineer working with General Electric, which position he held until his new appointment.

• **Arthur J. Baehr** has been named representative in the Pittsburgh area for Wheel Trueing Tool Co., Detroit, with his headquarters at Chagrin Falls, Ohio.

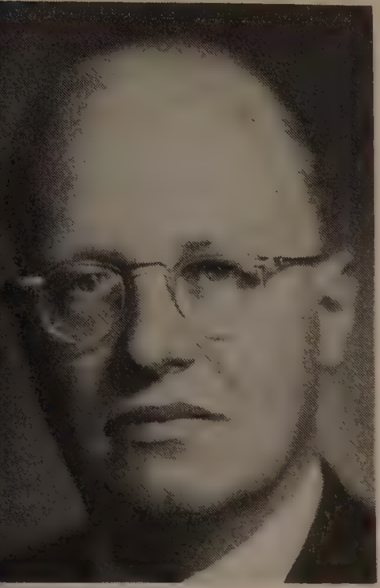
• **Dr. Charles E. Reed** has been named engineering manager of the chemical department, General Electric Co. Dr. Reed joined G-E in 1942 and has been manager of the chemical engineering division of the Pittsfield, Mass., department since 1945. **Robert L. Gibson,** manager of the plastics division of the chemical department, has been named assistant general manager of that department. **Harry K. Collins** and **John L. McMurphy** have been named to managerial posts of the plastics division and the chemicals division, respectively, in the reorganization of the chemical department. Assisting Mr. Collins, **Frank W. Warner** has been appointed engineering manager; **Robert O. Bullard,** manufacturing manager; **Donald S. McKenzie,** sales manager; **Elmer H. Gabel,** accountant. **Arthur C. Treece** becomes assistant to Mr. Collins on laminated products. Mr. McMurphy's staff includes: **C. Stewart Ferguson,** engineering manager; **John A. Zellhoefer,** sales manager and **Robert A. Rieker,** accountant. **Erwin T. Kilgore** becomes assistant to Mr. McMurphy on silicones. **W. V. O'Brien** has been appointed general sales manager of the apparatus department. He has been assistant general sales manager since 1947.

RALPH W. MORRISON, general sales manager, Aro Equipment Corp.

• **Ralph W. Morrison** has been appointed general sales manager of Aro Equipment Corp., Bryan, Ohio. Mr. Morrison joined the Aro organization in 1940 as Detroit division manager. In 1941 he was made assistant sales manager of the Air Tool Div. and later was advanced to the sales managership of that division. **E. W. Iman** has been promoted to sales manager of the Lubricating Equipment Div., after having served several years in the Factory Sales Dept. and as assistant sales manager. **E. L. Jackson** has been made sales manager of the Industrial Tool Div. Mr. Jackson joined Aro in 1943. In 1946 he was made assistant sales manager of the Industrial Tool Div.

• **Harry P. Smith,** formerly New York district sales manager of Mathieson Chemical Corp., has been made assistant general manager of sales. Prior to joining Mathieson sales in 1944 he served as president of the George Chemical Co., now a division of Diamond Alkali Co.

• **W. T. Gettig** has been appointed works manager of Edward Valves, Inc., East Chicago, Ind. Mr. Gettig joined Edward in 1933 as a machine tool operator and successively served as a methods engineer, supervisor of the methods department, assistant production manager and production manager.



ILLIAM S. BEGG, vice-president
and secretary, American Steel &
Pump Corp.

William S. Begg has been ap-
inted vice-president and secre-
ry of American Steel & Pump
rp., New York. Mr. Begg brings
the corporation and its operat-
g subsidiaries a background of
years' experience as a lawyer.
had formerly been associated
th Willkie Owen Farr Gallagher
Walton and its predecessor
ms.

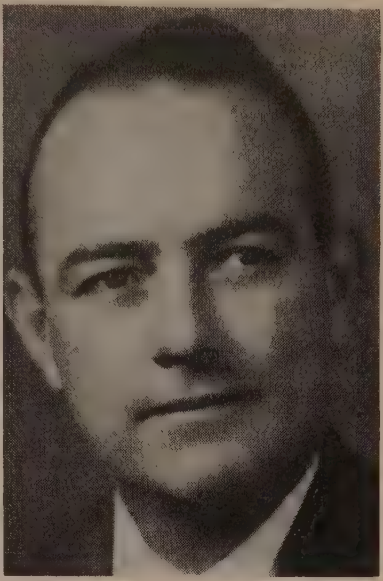
- **Sherwood C. Moss** has been elected president of Metal Cladding, Inc., Buffalo, succeeding **Vern J. Kendrick**, resigned. Mr. Moss previously served as chairman of the board.

- **Clarkson Hill** has been appointed director, accounting and cost planning for the glass division, Pittsburgh Plate Glass Co., Pittsburgh.

- **R. A. Wernsdorfer**, service engineer in charge of repair and service of electric tools at the Atlanta Branch of Black & Decker Mfg. Co., has been transferred in the same capacity to the Baltimore branch. **G. C. Wilhide, Jr.**, has been appointed service engineer in Atlanta to fill the vacancy left by Mr. Wernsdorfer.

- **Louis W. Kroner**, owner and manager of Easton Sanitary Milk Co. and a director of Easton Trust Co., has been named to the board of directors of Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

- **Fred W. Clement** has retired as turn foreman at the Duquesne, Pa., Works, Carnegie-Illinois Steel Corp., after 50 years' service with the U. S. Steel Corp.



R. D. HILLER, JR., regional manager, Gar Wood Industries, Inc.

- **R. D. Hiller, Jr.**, has been promoted to south central regional manager of Gar Wood Industries, Inc., Wayne, Mich., with his headquarters at Tulsa, Okla. Mr. Hiller formerly served as district manager in the southwest. **W. A. Williams** has been made district manager to fill the vacancy created by Mr. Hiller's appointment.

BITUARY...

Robert W. Porter, 60, assistant
the president, National Radi-
or Co., Johnstown, Pa., died Oct.

John D. Fleming, 58, organic
es development department,
nsanto Chemical Co., died
t. 12.

C. Eugene Pettibone, 64, vice-
sident and manager, engineer-
r department, American Mutual
ability Insurance Co., and for-
rly with American Steel & Wire
, and Pickands, Mather & Co.,
d Oct. 10.

Corey C. Brayton, 72, sales engi-
er, American Manganese Steel
v., American Brake Shoe Co.,
kland, Calif., died recently.

- **Robert B. Shearer**, vice-president and manager of the Steel Dept., C. S. Mersick & Co., New Haven, died Oct. 16.

- **H. Albert Hansen**, engineer, Bendix Aviation Corp., Detroit, died Oct. 18.

- **George T. Koch**, 49, president, Engineering Service Inc., and Visi-Trol Corp., Detroit, died Oct. 16.

- **John E. Locher**, 76, former factory manager, Packard Motor Car Co., Detroit, died Oct. 19.

- **George C. Christopher**, 90, founder, president and partner, George C. Christopher & Son Iron Works, Wichita, Kan., died Oct. 7.

- **Eugene M. Marchand**, 47, Sandusky plant engineer of New Departure Div., General Motors, died Oct. 20.

- **Roy L. Bright**, 56, vice-president and general manager, DuBois Plastics, Inc., Buffalo, died Oct. 20.

- **Eugene T. Scott**, 35, former sales manager, Templeton, Kenly & Co., Chicago, died Sept. 30.

- **Robert C. Olson**, founder and president, Olson Mfg. Co., Worcester, died Oct. 12.

- **L. H. Burnett**, former vice-president, Carnegie - Illinois Steel Corp., who retired after 40 years with U. S. Steel Corp., died October 26.

- **Malcolm M. Parker**, 45, assistant to the purchasing agent, Lukens Steel Co., Coatesville, Pa., died recently.

European Letter . . .

• China's stringent economic situation increases corruption . . . Teachers and students in dire straits . . . Chinese communists suffer hardships cheerfully . . . Nationalists have no idealism or enthusiasm to buoy them, only embittered frustration.

LONDON — The China situation must appear highly bewildering to the reader in England. But the truth is that if one spends six months wandering about China today, especially if one can get off the beaten tracks into the interior, one's dominant emotion at the end of it all is also bewilderment, and the less confident does one feel about making sweeping generalizations. Since, however, one has to generalize, the main conclusions reached are as follows: Firstly, the Communists are winning; secondly, whether manipulated by Moscow or not, they are playing the Russian game, and are solidly on the Russian side in the present world struggle for power; thirdly, there is still a surprising degree of wishful thinking, amongst foreigners in China as well as abroad, on the following questions: Are the Chinese Communists really Communists? Can you impose a Communist system on a people so intensely individualist as the Chinese? Will the Communists retain their present freedom from graft and dishonesty? Is there a split between the Manchurian and North China Communists? Is a compromise settlement possible? If the Communists come out on top, will it be possible for the foreign firms to do business with them?

China is a country in the grip of a civil war, but neither side makes it possible for a foreign correspondent to accompany troops in the field. It is almost impossible to see anything of the actual fighting unless one accidentally happens to be in a place when it is captured. One gets the impression that neither side is very strong, and that, although casualties are higher than in past Chinese civil wars, much of the fighting follows the traditional Chinese pattern of movement and maneuver, with the losers, when they are cornered, preferring to surrender rather than fight it out. Very noticeable is the Maginot-mindedness of the Nationalists and all the zones threatened by the Communists are dotted with fortifications, nearly always built with conscripted peasant labor. Mukden has a pill-box at every street intersection; Talyuanfu is surrounded by hundreds of three-storied concrete towers, like lighthouses. A foreign military observer described the Nationalists as being defensive beyond belief. The only Nationalist field-commander with any real offensive spirit is General Fu Tso-yi, and the Communists keep him and his troops chasing up and down his long North China corridor from one end to the other. His troops, sturdy young Suiyuan peasant boys, personally devoted to their commander and proud of their nickname, "Yellow River Bend Babies," are amongst the few Nationist troops who will fight it out. But there are not enough of them and they do not have enough arms. When General Fu scraped some American dollars together recently and tried to buy some arms from abroad on his own, he was politely told by the various foreign governments he approached that they could only do business with and through the central government. Probably the next best troops on the Nationalist side north of the Yangtse are the Mohammedan Chinghai cavalry divisions in Shensi and Honan. They too are personally devoted to their commander, the brilliant and courageous 28-year old son of the Governor of Chinghai, but a more powerful motivating force in their case is the pride of an aggressive minority with a long martial tradition behind it. As against these outstanding exceptions, one must set the picture to be seen any day on the docks at Shanghai, of ill-kempt, ill-armed, ill-trained, undisciplined, unwilling conscripts, whose families did not have enough money to purchase their exemption from military service, waiting to be shipped off to the war zones. The American Advisory Group, which is trying to reorganize the Chinese army along American lines, is essentially a long-term affair and is not making much difference to the present military situation. The new generation of young Chinese officers, mostly middle-school graduates, are usually smart in appearance but do not impress as being formidable fighting men.

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It is amazing that anything continues to function, with a currency that changes its value from day to day, spiralling upwards at an ever-increasing rate and odd how quickly one learns to deal in millions instead of ones and masters the specialized mechanics of life in a country gripped by inflation. For the Chinese, who are naturally clever with figures and money matters, the mental adjustment has been a gradual one. The effects of the inflation were less severe because there were other currencies, more or less stable, in which all the more important business was transacted: American dollars in the Yangtse valley and the north, Hong Kong dollars in the south, and silver dollars throughout the northwest, not to mention gold, which has been pouring into the country, chiefly through Macao. Three dollars in a Peiping curio shop meant three American dollars, three dollars in Chinghai meant three silver dollars,

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Elwell-Parker builds a complete line of RIDDEN low lift trucks. Capacities, 2 to 10 tons; reasonably prompt deliveries. If necessary, platforms of special length and width can be furnished.

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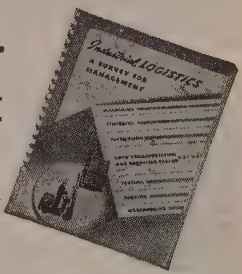

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POWER INDUSTRIAL TRUCKS

"three hundred dollars" at a wayside stall in Nanking meant three hundred ten-thousands, or $CNC-3,000,000. Well over half the Hong Kong note issue is circulating in south China.

THE country-people have suffered less than the town-dwellers. Their attitude, in the remoter country districts, towards the civil war is well summed up in the old Chinese proverb — "In the right hand a sour pear, in the left hand a prickly pear." In Shanghai, despite the seeming chaos and deterioration, the masses of the people are actually better off than they were before the war and real wages have doubled. The civil war is causing a certain uprooting and movement of peoples, but it is not to be compared with what took place in India last summer. All the big cities in nationalist hands are crowded with refugees of the more prosperous landed and official classes, some, formerly very rich, now living in penury. Near famine conditions in Shensi have been causing many thousands of peasants to migrate northwards into Nationalist Suiyuan. Famine conditions in Mukden last May were sending refugees out in the other direction, into the Communist territories, looking for food.

Economic stringency is bringing about the same movement towards a classless society that it is in England. It costs the head of a government department in Nanking 30 pct of his salary to keep a servant compared with 4 pct before the war. Nearly all property-owning Chinese in Nanking have let their houses to foreigners at American dollar rentals while they themselves live in the garage or the gateman's quarters. Economic stringency has also brought about the terrible increase in corruption which characterizes present-day China. In the big cities there is little unofficial social intercourse between foreigners and Chinese because the Chinese cannot afford to entertain and do not like to accept hospitality they cannot return. Somehow life goes on. In the same way that a Chinese can sleep soundly ten yards away from a pneumatic drill with an arc light beating into his face, so the people carry on cheerfully and fatalistically under material conditions that would long ago have caused explosions in other countries.

The people who are suffering most and for whom one feels most sympathy are the teachers and the students. An assistant professor at a northern university, who was going to England under the auspices of the British Council, told me that he had had to spend $CNC10 million out of his salary for that month of $CNC21 million on a pair of new, and not very good, brown leather shoes. The Dean of the Arts Faculty at this university had such a small house that when one of his children was home for the holidays he had to sleep on the floor. Another professor had only two small rooms for himself, wife and four children, which had to serve as bedroom, dining-room, kitchen and study. "It's not easy," he said, "to do any good intellectual work under these conditions." The medical officer of this university, unable to support his mother, pregnant wife and six already under-norished children, drowned himself in the lake. A subscription was opened for the family, to which some junior lecturers gave more than a month's salary. The only way in which teachers in China can meet with any capital expenditure is by selling personal possessions, and most have few personal possessions left.

BUILDING UP: *American steel and personnel help build up war torn countries. Here a bridge is being rebuilt that was destroyed during the Japanese invasion of China. Work is progressing under the UN world reconstruction program.*

STUDENTS at most of the universities live eight, ten or twelve to a room, sleeping in two-tiered bunks, with a crude table and a naked light to work by. Tea is too expensive, so they drink hot water. In the mess-hall, where they feed together twice a day, they will be lucky if they get meat more than once a fortnight or rice more than once a week. Most of the students today come from poor country families and practically all of them are maintained, in whole or in part, by the government. It is possible that in Communist territory teachers and students would cheerfully put up with these conditions for the sake of a cause. But in nationalist territory nowadays there is no idealism or enthusiasm to buoy them up, only an embittered frustration, which reminds one irresistibly of India and which makes it difficult to discuss political topics in a detached way. One cannot argue; one can only press buttons and listen.

Small wonder that these educated classes, possibly the most important single element in the country since amongst them are the leaders of tomorrow, are turning more and more towards Communism. Estimates by foreigners in educational circles in Peking, the main scholastic center, of the number of Communist sympathizers amongst the students range from 50 to 90 pct and include almost all the students who take any interest in politics. It was easy to get irritated with the students in Peking this summer, with their constant strikes, sometimes on very flimsy pretexts, and their demonstrations against American aid to Japan (really against American aid to China, but the authorities would not permit this). These young men, rushing to meet their chains, will have little freedom to demonstrate under a Communist government. But it is important to understand the deep frustration that underlies such demonstrations

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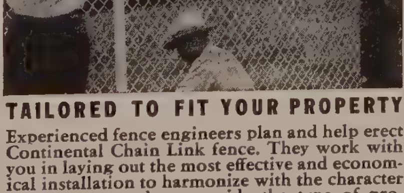

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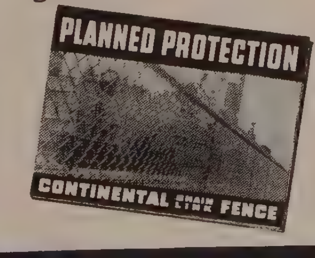

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CONTINENTAL STEEL CORPORATION

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Industrial News Summary...

- ***Future Iron Ore Supplies Are Good***
- ***Canada and S. America Are Sources***
- ***Steel Demand Still at Top Levels***

LACK of iron ore for the future is no longer a hobgoblin to the American steel industry. It never was to some steel people. But to others it was a definite threat and caused some quivers. Especially when possibility of war, defense plans, unprecedented domestic demand and general exhaustion of cheaply mined high grade ore were considered.

Most large steel firms in this country have as much as 15 to 20 years reserve of high grade Mesabi ores—maybe more. For many more years they have lean ore reserves which can and will be beneficiated—but the costs will be high. The main thing is that low grade ores in the Mesabi will furnish the material for steelmaking long after many people now in the steel industry are dead and gone.

Beneficiation—separating rock from low grade ore and concentrating the result into high grade sintered iron ore—of Adirondack magnetic ores is going forward by leaps and bounds. In the next 8 to 10 years Republic Steel Corp. may be getting as much as 45 to 50 pct of its ore requirements from that region.

Jones & Laughlin Steel's people hope to get 800,000 tons of concentrated ore out of their northern New York properties this year. But plans are already drawn up to expand this to a much greater figure in the years to come. There is plenty of magnetite ore in the Adirondack fields for these two companies to draw from—and they will exploit it to the utmost.

So even without going outside of the United States there is no chance that the steel industry will fold up 50 years from now because of ore shortages. But that isn't the real story to the recent wave of optimism in iron ore mining circles. There is plenty of ore—high grade—in Canada and in Latin America. It is certain that it will be speedily developed and will become a valuable source to bolster supplies which are in the United States.

OF great importance to the United States has been the proving, a little over a week ago, of 300 million tons of high grade iron ore in the Quebec-Labrador project. These concessions are controlled by the Hollinger Consolidated Gold Mining Co., Ltd., of Montreal. M. A. Hanna Co. of Cleveland has a minority interest in this development which means that when ore is mined—after the railroad is built and financial arrangements have been made—National Steel Corp. will benefit.

The ores found in the Quebec-Labrador fields are very high grade. The weighted average of the total ores proved show: 59.1 pct iron; 1.33 pct manganese; 0.084 pct phosphorous; 0.012 pct sulfur and 6.86 pct silica. There is practically no overburden.

No attempt was made to measure any ore deposits which ran under 55 pct iron—although there is definite evidence that ore running between 40 and 50 pct iron in this Canadian jackpot will run two, three or more times the amount of high grade ore already proven to exist.

Assuming that financial arrangements will be made, there is every reason to believe that high grade Canadian iron ore will be marketed by M. A. Hanna within the next 5 to 6 years.

From Brazil to the United States have come small but steady shipments of high grade iron ore. It is only a sample of what is available in that country which holds probably the largest deposits of high grade ore in the world. Transportation difficulties and other factors make inaccessibility the chief reason for token shipments.

But Chile is another matter. There Bethlehem Steel Corp. has large holdings. Mining proceeded there during the war so stockpiles are heavy. Bethlehem has turned to Venezuela where more than 50 million tons of high grade ore have been proven. Shipments from that field will come to this country late next year.

STILL another company, U. S. Steel, has done exploration work in Venezuela. From reports in the trade it is apparent that what U. S. Steel found has been more than gratifying. It may be some time before U. S. Steel starts mining there. But large quantities of ore will be available.

Steel leaders this week should have been gleeful about their earnings statements but they weren't. Third quarter figures were about 60 pct ahead of last year's. Furthermore the industry as a whole may earn about $575 million this year compared to about $475 million last year.

But high costs of replacements and expansion programs have some steel people scared to hell and gone. That's why most large companies are holding on to net income; refusing to raise dividends and generally hiking "extra" depreciation funds. To bring it home more forcefully—the increase in earnings for the industry this year over last year will be about $100 million, or less than Jones & Laughlin Steel Corp. will spend on improvements within the next few years.

Steel ingot output still stays at record levels this week—99 pct, unchanged from a week ago. Steel demand has not changed. Most steel firms will wipe out carryovers by the end of the year. This means that these firms will start out with a clean slate—but it will also mean that many steel users will not get steel which they had hoped to get by the end of this year. They will have to reorder and hope to get it some time early in 1949.

SMOG OVER DONORA—The Donora Zinc Works of nerican Steel & Wire Co. began to shut down last week- l after the town was blanketed by a mysterious death- ıling smog. By Sunday, 4 days of smog had killed 19 erly residents, all of whom has asthma or heart trouble. re company officials said the shutdown was precaution- . They thought there was small chance that the zinc rks was responsible since the process there had been changed since 1917. It was recalled that the industrial use Valley in Southeastern Belgium experienced a smog t killed 70 in 1930. No cause could be assigned for the nora deaths pending further investigation.

SNARLING DISTRIBUTION—Federal Trade Com- ssioner Lowell B. Mason has his dander up. He charges t the majority of the FTC members are snarling distri- ion with the decisions they have been getting against cement, conduit, crepe, corn and salt industries. He ther urges legislative action by Congress to rectify the ıation that has arisen from FTC prosecution and tear vn the Tower of Babel that FTC has created by med- ıg in the industry's pricing systems which have been eloped over a period of many years.

TOP PAY—Average hourly earnings for factory work- reached a record high of $1.36 during September, eau of Labor Statistics reports. Due to a slight drop in average work-week, however, the average weekly pay ained at the August figure of $54.06. Pay scales in non- able goods factories still average less than for durable ds production—$50.13 against $57.92.

REPUBLIC CONVERTS—Republic has converted its 2 blast furnace at Warren by installing a high top pres- e system in a 9-day change over period. It is expected t the new operating technique will increase the capacity the furnace from 900 tons to 1080 tons daily. Similar nges in the pressure system have already been made in veland, Chicago and Youngstown furnaces. It is under- od that it takes about 2 years for the company to pay the changeover after which the 20 pct increase in pro- tion really begins to pay off.

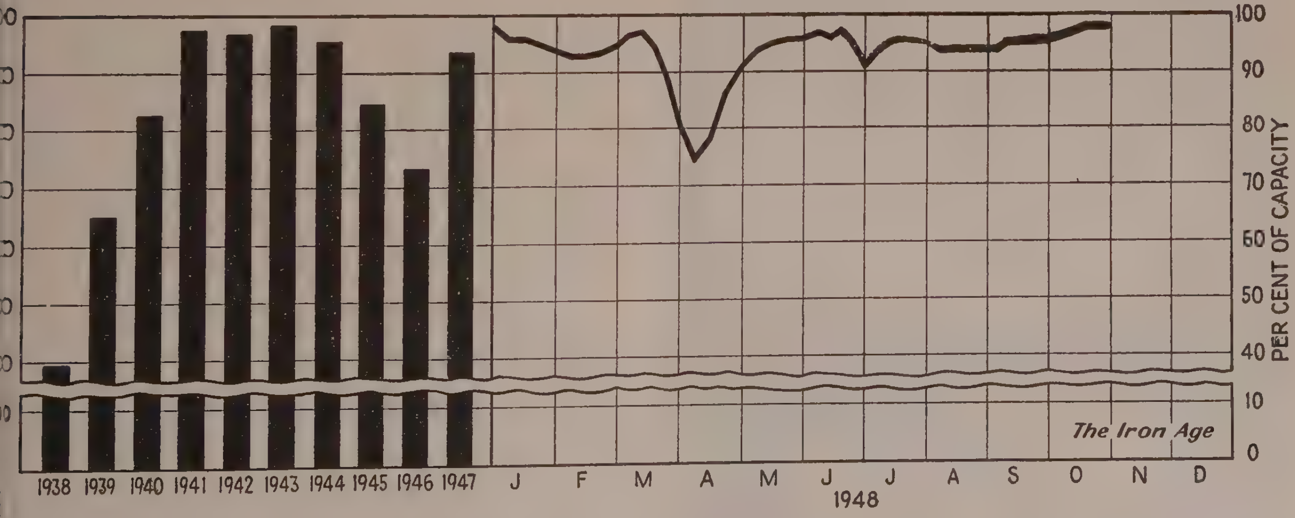
- **ZINC ADJUSTMENT**—Prices of galvanized sheet, tubing and other products coated with zinc have been upped by Carnegie-Illinois and National Tube to compensate for the ½c a lb increase in the price of zinc by leading producers. Since U. S. Steel subsidiaries have no control over the fluctuations in the market price of zinc, the formula provides for automatic increase or reductions in the price of zinc coated products in keeping with the curent price of the commodity. So, effective Oct. 26, Carnegie has revised upward extras for all galvanized sheet by about $1.25 a ton or about 1 pct in the price of such products. National Tube has similarly decreased the discount of galvanized pipe by one half point—about $1 a ton increase—or less than a 1 pct increase in the price of galvanized pipe.

- **STANDBYS**—WAA has announced the transfer of three Chicago region war surplus plants to the Federal Works Agency. They will be kept in standby condition as part of a national industrial reserve. The plants are the Gary Armor Plate plant, Gary, Ind.; a magnesium plant in Luckey, Ohio, and the Badger Ordnance Works, Baraboo, Wis. These plants are the first in this region to be transferred under a law passed by Congress last summer to turn certain industrial plants into the standby status rather than to permit their unrestricted sale as surplus property

- **MECHANICAL MOLE**—The Sunnyhill Coal Co. of Pittsburgh has developed a mechanical coal mining machine that can turn out more than 100 tons of coal per man day. Today the average production per man day is about 6 tons. The machine performs 4 operations; undercuts the seam of the coal, drills, blasts and loads, all in one.

- **J & L EXPANSION**—The six openhearths which THE IRON AGE reported in September would be added to Jones & Laughlin's Pittsburgh Works are part of a $70 million improvement program. The program is contingent on acquisition of the balance of the needed land. Some 400,000 net tons of capacity in obsolete openhearths will be abandoned when the new facilities come in. Net gain in capacity at the Pittsburgh Works will be 400,000 tons, some of which will come from additional hot metal capacity due to blast furnace and raw material improvements.

Steel Ingot Production by Districts and Per Cent of Capacity



ek of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
....	100.0*	100.0*	94.0	90.0	102.0*	105.0	95.5	102.0	102.0	95.5	110.0	85.5	91.0	99.0
....	99.0	99.0	94.0	96.5	103.0	105.0	96.0	102.0	102.0	99.0	110.0	84.5	91.0	99.0

Revised.

ARCOS ELECTRODES

MEET CRITICAL REQUIREMENTS IN STAINLESS AND ALLOY WELDING

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Every Arcos electrode is the product of careful testing and retesting during development; close adherence to strict specification for raw materials; and conscientious application of quality controls in manufacturing. That is why Arcos electrodes give consistently sound, trouble-free weld metal.

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1500 S. 50th ST., PHILADELPHIA 43, PA.

Informational Data ON STAINLESS, LOW ALLOY, AND NON-FERROUS WELDING

GENERAL TYPE	USUAL WELDING APPLICATIONS	ARCOS GRADE NAME
CHROME NICKEL (Austenitic Alloys)	Cavitation Resistance	Chromend 16/7
	Armor	Chromend 19/9Mn
	Types 301, 302, 304, 308	Chromend K
		Stainlend K
	Type 309, or for joining 18/8 stainless to mild steel.	Chromend HC
		Stainlend HC
	Similar to Type 309 for welds requiring columbium.	Chromend 25/12Cb
		Stainlend 25/12Cb
	Type 310, or stainless clad, or stainless to mild steel.	Chromend HCN
		Stainlend HCN
	Similar to Type 310 for welds requiring columbium or molybdenum.	Chromend 25/20Cb
		Chromend 25/20Mo
	Super Alloys to Low Alloy Steels	Chromend 29/9
	Type 316	Chromend KMo
		Stainlend KMo
	Type 316 Columbium Stabilized	Chromend KMoCb
		Stainlend KMoCb
	Type 317	Chromend 18/8Mo
		Stainlend 18/8Mo
	Stainless W	Chromend W
	Type 329	Chromend 25/3Mo
	Heat and scale resisting alloys Types HT and HU castings.	Chromend 15/35
		Stainlend 15/35
	Types 347 or 321—columbium or titanium stabilized 18/8.	Chromend 19/9Cb
		Stainlend 19/9Cb
	Super Alloys—High Temp.	Chromend 19/9WMo
	Heat and scale resisting alloys —high temperatures.	Chromend 13/60
		Chromend 14/75
		Chromend 20/80
		Chromend 15/85
STRAIGHT CHROME (Ferritic Alloys)	Type 410	Chromend 12
	Type 430	Chromend 16
	Type 442	Chromend 18
	Type 446	Chromend 28
CHROME-MOLY (Martensitic Alloys)	2% Cr-Moly	Chromend 2M
	Type 502	Chromend 5M
	Type 505	Chromend 9M
NON-FERROUS	Copper-nickel alloys	Nicuend
		Monend
	Pure Nickel	Nickelend
	Copper or copper base alloys	Bronzend E
		Bronzend P
HIGH MANG.	Surfacing to resist wear.	Manganend 13
LOW HYDROGEN FERRITIC	For enameling steels	Namellend
	Low Alloy High Tensile Steels 90-100,000 psi	Manganend 1M
	100-125,000 psi	Manganend 2M
	70- 80,000 psi	Nickend 1
	80- 90,000 psi	Nickend 2

UEBEC-LABRADOR-*Canada's Iron Ore Jackpot*

○ ○ ○

By TOM CAMPBELL

News-Markets Editor

○ ○ ○

nt Creek, New Quebec

• On Oct. 15 Jules Robert Tim-
s, restive head of Canada's
inger Consolidated Gold Mine
was a happy man. He had a
t to be. That was the day
n his field man here, Jack Lit-
told him that there were 300
ion tons of iron ore proven in
area.

ut Mr. Timmins was not the
happy man. So was Dr. Joe
y, iron ore champion in this
on for years. So was Bill Dur-
general manager of the Que-
Labrador project whose job
now be the building of a 350
railroad—after financial ar-
ements have been made.

nother fellow who gets a big kick out of future prospects for this area is Dr. Ab Moss, Dr. Retty's right hand assistant. Formally known as assistant chief geologist he has shared Joe Retty's enthusiasm. So much so that he sometimes has a vague look during his short visits at home.

There was no general shouting or even a testimonial dinner here at the crossroads of this barren land. Men were anxious to get home after a record breaking pace in proving the amount of ore necessary to call the venture a success.

But 3 days spent here showed that the camp folks felt in their bones that they were in on something big. And most of them want to keep in touch some way until the job is finished.

That job will not be done until the railroad is built. This will be no pushover. Conservative guess is that Burnt Creek will be connected with Seven Islands in 5 or 6 years. But people around here look for the completion in 5 years —or much less if the certainty of war appears.

Laboratory analysis of the final drilling has to be completed by M. A. Hanna to prove the 300 mil-

Background

Burnt Creek, New Quebec

• • • Presence of iron ore was first
considered likely here in 1893. Dr.
A. P. Low, of the Dominion Geological
Survey roughly outlined the Labrador
trough then. No iron ore was found
but iron formation was noted.

In 1929 Dr. W. F. James and Dr.
. E. Gill, well known Canadian geol-
ogists, discovered iron ore at Ruth
ake in Labrador. Nothing was done about the discovery. The next development of any importance was in 1936.

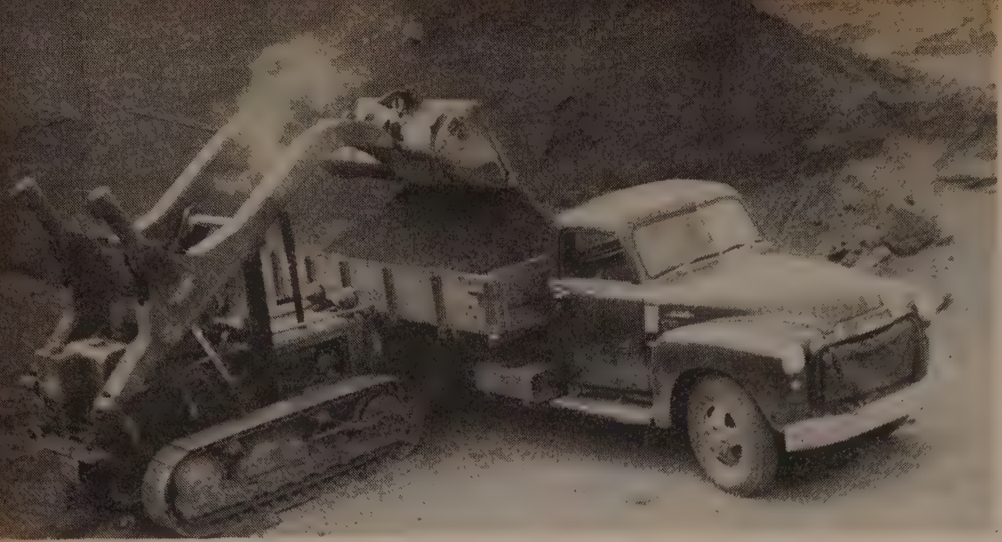
At that time A. H. McKay of Montreal formed the Labrador Mining & Exploration Co. He acquired a 20,000 sq mile concession in Labrador.

Dr. Joe Retty was geologist and in charge of exploration for the Labrador Co. Into folklore has gone the story of the Indian trapper from Seven Islands telling Joe about iron ore at Sawyer Lake. This was in 1937.

Joe plugged continually for iron ore exploration. Today he is still chief geologist for Labrador Mining which Hollinger Consolidated Gold Mining Co. took over in 1942.

Much gossip has gone the rounds about the Quebec-Labrador iron ore project. Some of it is fiction. This article was written "on the spot" by Iron Age's news-markets editor. It is the latest report on the whole project. It covers events up to the actual closing time this season on Oct. 23.

Photos by Dr. Ab Moss for THE IRON AGE



• *Lots of gravel on the spot.*

lion tons. But there is no question at all that it is there. The ore has run very high in iron content and a good average in manganese. There appears to be a substantial amount of manganiferous ore in these parts.

Typical ore will run 59 pct iron dry, 1.50 pct manganese and 8 pct silica. There will be millions of tons with more iron than 59 pct. And it is a sure bet that there will be little below 55 pct. Why? Because anything below 50 pct iron was ignored.

• *Churning the jackpot.*

There is likely two or three times more ore in these parts classified as taconite but which will run from 40 to 50 pct iron. But that story will be proved much later—if necessary. At this point it is doubtful if it makes too much difference if it is mined or not.

Up until a few years ago no white man had set foot on much of this iron ore zone. After a year there must be about 80 miles of road. You could say that 10 miles of that is "improved." A jeep, half-track, a truck or a man can navigate all of it pretty well.

One jeep here has gone 25,000 miles over the territory and is still perking. It has been overloaded so many times that its original load factor is a big joke in the camp. And it has gone over so many spots where no road—or anything else but rocks—existed that both it and its driver, Ab Moss, feel like "refined" folk when running on the improved road.

The big project immediately ahead is a winter road inland from Seven Islands to supply railroad construction camps. It will be surveyed and built this winter. The first 100 miles from Seven Islands (please see map) is pretty rough. And a winter road means cutting down the trees, rolling a little maybe, and just making sure that the trail can be followed.

Some careless people have repeated stories that this area could not be mined more than 3 or 4 months a year. This is being written at Burnt Creek on Oct. 22. There are two big diamond drills going lickety-split about 200 ft

from here. There have been a f
snow flakes. Temperatures t
week ranged from a low of 12.5
to a high of 39°F.

Jack Little who has run the s
bang here for the past year an
half thinks that with good wea
er, ore can be mined 5½ to
months a year. With bad weat
about 5 months will be the thi
And the average should run m
than 5 months a year. So much
the pessimistic weather proph
—some of whom do not kn
where this camp is.

Like all things which seem
possible, the hidden ingredien
to outsiders—is a human trait.
ficiency has been high here. It w
be high when the railroad sta
abuilding. Men have been hap
here. The barrenness and sadn
of the surrounding country h
been ignored.

I saw the looks on many of
men's faces when they shipped
by air to go home this week. Th
were glad to be going—home. B
they acted like they were leav
an old girl friend: hoping th
they might get back, if not to dr
then to build this place into wh
they all think it will be—a b
wark against any day when No
America will be short of iron o

This efficiency and this feeli
of being in on the ground floor
solid. And it will last. It h
every man that comes up here.
is worth its weight in gold. It
the old pioneering spirit. Ev
time Doc Ab Moss runs his
tests he dreams, not of the 26
posits that have been drilled
hell and gone here. He dreams
the time when the railroad is
and ore is going out of here a
10 million-ton yearly rate.

But words do not do this
justice. Most of the drilling
deposits—some of which run
wards of 40 million tons of or
has been done in 9 to 10 mont
Everything now seems like it h
been here for years. It hasn't. M
houses, tractors, trucks, h
churn drills, diamond drills, t
tors, half-tracks, groceries a
what all have been flown in h

If the airborne screwballs e
wanted to get a testimonial
what airplanes can do let th
come up to this camp and l
around. So the Newfies want
go home to Newfoundland. Alri
out they went yesterday—21
them—to a point 800 miles fr
here. Out go the same amount
next day. Nothing to it. But t

• *Rugged, isn't it?*

ll potatoes—getting the men d in. The whole camp de- on the Hollinger Ungava port Ltd.

is a full-fledged flying out- hey supply everything but and water. And they will bigger job to do when the d starts. The captains— now most of the men in —are former RCAF trans- ilots. What they don't know flying around this wasteland l ore was found—isn't worth ng.

ipment includes two DC-3's, seman and a Stinson. The man and the Stinson operate ts or skiis to supply outly- mps like Eclipse. Early in me last year the Norseman s part bringing in supplies en—by landing on the lakes.

s Timmins can feel better his freight costs now. In ne was paying 73¢ a lb to stuff in here. This year costs one down to around 7¢ or 8¢ hen regular loads are com- .

are a few of the items have been flown in here: trucks, 15-ton bulldozers, churn drills at 6000 lb a nded on ice, internal com- engines. Or another way, April of this year more than ns of freight have been n—aside from men.

ley Hoyt who runs the air has his base and offices at Toli. The next leg is Seven s. And they have a big air aid down about 10 miles amp here. For some reason r two of the captains flying out here have Scotch mon- Scotty and McIntosh. But ey are Canadians. And be- ney and their buddies are nd the railroad is finished ill know a lot more about 0 barren miles from Seven ; to Burnt Creek. That is hey start dropping out of with railroad construction ools, machines, food and ts.

what about the iron ore? s the reason for all this. Timmins has always been a ng man—with his own When he came into this he was looking for base —copper, lead, zinc, nickel who knows, maybe gold. e spent more than half a dollars and lost on that for the time being. But he did hit the jackpot when his men literally tripped over iron ore. His minority partner George Humphrey of M. A. Hanna was also worked up over base metals—but not for long.

M. A. Hanna which supplies ore to steel companies and which is tied in with National Steel Corp.—Great Lakes Steel and Weirton Steel—will eventually do the marketing and furnish knowledge for the commercial end of the business. Its men also have iron ore mining experience needed here when mining starts.

The most northerly point in this ore development is at Eclipse which is about 90 miles from the southern camp, Sawyer Lake. This is the main ore trough. Five camps were established with one to four drills at each camp. Practically no overburden was found or if there was any it was only a few feet before high grade ore was uncovered. Acceptable ore has been found from 0 ft to 367 ft below the ground. Seven hundred holes have been drilled—more than 65,000 ft—or a total of 13 miles of drilling.

Now comes the controversial question. How much is it going to cost to build the railroad? Also what will it cost to haul the ore to Seven Islands where there will be storage and dock facilities? No one really knows. Estimates have been conservative. They have to be. No one subject to censure will cut it too short—nor will he make it too big.

The railroad will cost about 100 million bucks. Maybe less. And when the ore starts moving down the Quebec North Shore & Labrador Ry. (that's its name and you will hear more about it in years to come) to Seven Islands the cost may be about ½¢ a ton mile.

The distance will be around 350 miles. We can say that it will cost about $1.75 a ton to get the ore

• *Main street before chow.*

• *Big Jack Little, the camp's boss man.*

down to the harbor which will be free of ice for 9 months out of the year—and an easy job for ice breakers for the balance.

The big factor in this ore venture which makes some people shiver is the proposed St. Lawrence Seaway. This has been more opposed in recent years than favored—in Canada and the United States. Now the story is different.

George Humphrey used to be opposed to it. Now of course he is for it; and why not? But if the ore to come from here is to reach the States it is almost necessary for the Seaway project to go through—if the ore is to be competitive in the Lakes steel mill area and the Pittsburgh district. Time will take care of this.

Messrs. Timmins and Humphrey have sunk \$4 to \$5 million in proving this ore zone. They have a lease on the Quebec part which covers 3900 sq miles. In Labrador the lease covers 20,000 sq miles. But in 10 years all this mileage has to be pulled in to about 10 pct of the total.

That means that by 1958 the Quebec development must be cut down to 300 sq miles. Exploration will continue so that by that time the most and the best will be controlled by Mr. Timmins. And it also means that work will have to be done to draw in the Labrador concession to about 2000 sq miles. That will be easy.

When the cards are all dealt and the bets picked up—to be plowed back into the venture—about \$200 million will have been spent, including the \$100 million for the railroad. This is a big gamble—\$200 million before the first ton of ore is shipped out. But it seems worth it to everyone connected with the venture—down to the native bus boy in the chow house. This figure is about \$100 million less than the one being booted about in the States by some who have not bothered to check with the people up here.

One of the biggest investments has not cost Jules Timmins a dime—plugged or otherwise. That is the morale and spirit of the men who have come up here to work. Before the ore is mined there will have been room for many different types of workers.

Let's list a few. Drillers, cooks, mining engineers, geologists, civil engineers, radio men, truck drivers, storemen, railroad workers, combustion engineers and so on. Many here can do more than one of the jobs mentioned. They hope, and the people here in charge hope, that as each phase of the work starts many of the same men will follow through to the end. Many of them will. The requests for free tickets for the first run of the railroad means that they will be riding on the engine, roofs and caboose—and walking the ties—if they all show up.

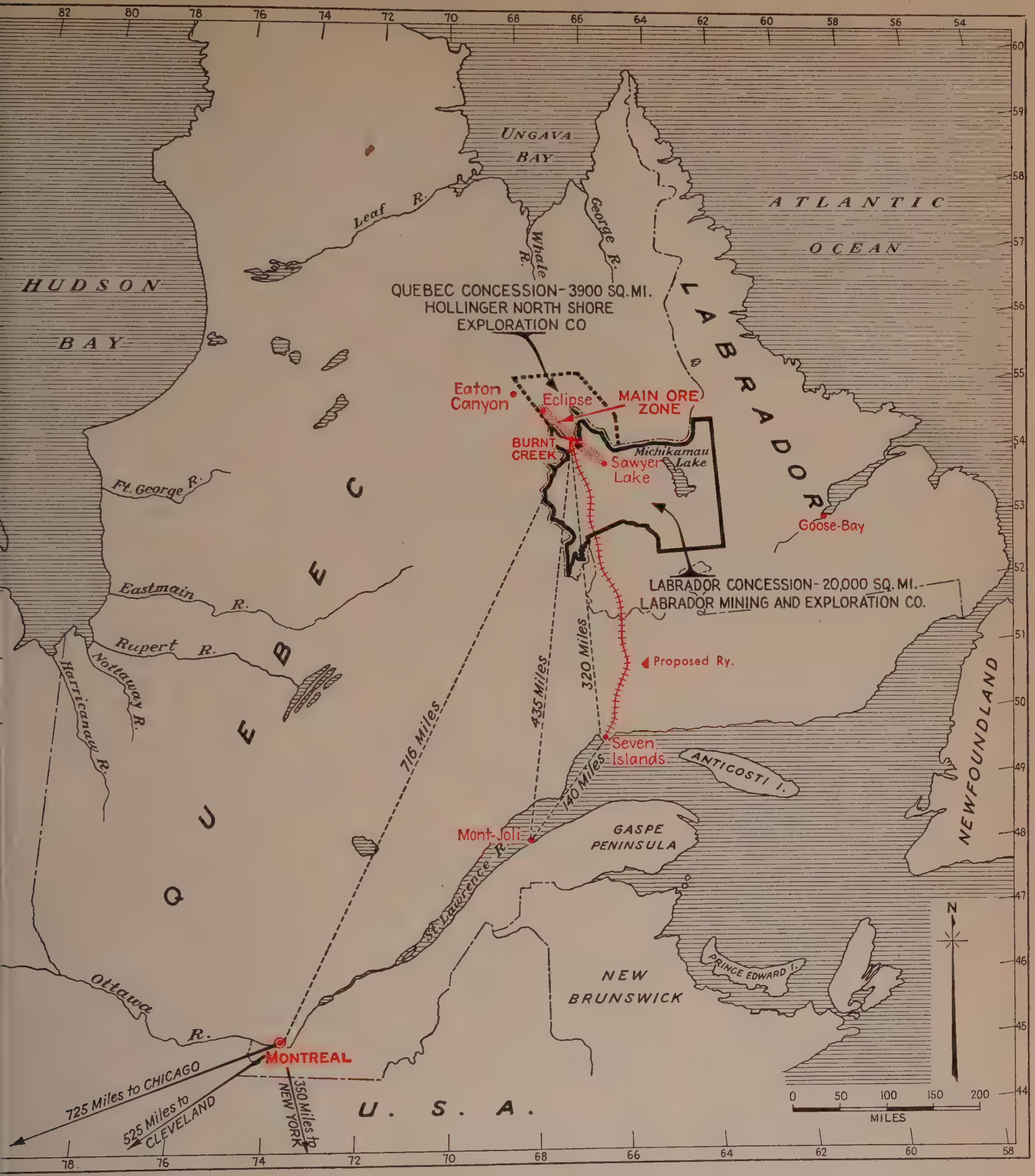
French speaking Canadians, English speaking Canadians, Newfoundlanders and Indians, have been welded together here as a unit. This may be 1100 miles or more from New York and deep in the heart of land without soil—you can't raise a thing. It may be a rough mining camp and have all the pull of the magic word "The North" but the paper-back novel readers will be disappointed to know there have been no murders, and not even a first class knifing. But there has been a deep drive that makes these men spend most of their time either working or thinking about their work. They really can't do much else.

But they are well trained and well bossed. They have had only one serious accident since the job started. What about whiskey? Is it a problem? Not at all.

If someone forgets to think fast and brings in a bottle the average drink he will get out of a 40 oz quart will be an eyecupful. Everyone and his brother will be there to take a pull at it and no one will be allowed to get more than a small slug. He could, of course, drink it alone but that is unlikely. But say that he did. That would mean only one workman off the beat for a day. So whiskey is no problem.

What about gambling? Well there are no deadeyed Dicks here. The pots run 5¢ and 10¢ a card and sometimes—but not often—two bits. They play for fun. Sometimes their fun runs away with them. After all, living up here gives you kind of an eerie feeling. So sometimes eight cards are wild. It has even happened that all the black cards have been wild. So its the cards which are wild—not the men. Their toughness gets its

• *Iron Age's Campbell with Labrador's Moss.*


HUDSON BAY
UNGAVA BAY
ATLANTIC OCEAN
LABRADOR
QUEBEC
NEWFOUNDLAND
Leaf R.
Whale R.
George R.
Ft. George R.
Eastmain R.
Rupert R.
Nottaway R.
Harricanaw R.
Ottawa R.
St. Lawrence R.
QUEBEC CONCESSION-3900 SQ.MI.
HOLLINGER NORTH SHORE
EXPLORATION CO
Eaton Canyon
Eclipse
MAIN ORE ZONE
BURNT CREEK
Michikamau Lake
Sawyer Lake
Goose-Bay
LABRADOR CONCESSION-20,000 SQ.MI.
LABRADOR MINING AND EXPLORATION CO.
Proposed Ry.
320 Miles
435 Miles
716 Miles
140 Miles
Seven Islands
ANTICOSTI I.
Mont-Joli
GASPE PENINSULA
PRINCE EDWARD I.
NEW BRUNSWICK
MONTREAL
725 Miles to CHICAGO
525 Miles to CLEVELAND
350 Miles to NEW YORK
U. S. A.
N
0 50 100 150 200
MILES
82 80 78 76 74 72 70 68 66 64 62 60 58 56 54
60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44

orkout on the job because this is place for sissies even in the mmer.

They are proud of their radio ation here. So are Canadian eather hounds and so are United ates weather slickers. Daily re-rts of the most complicated type e made up and radioed out, iled out and kept in the log. The nob Lake radio station about 10 les from here, gives the weather the flyers. It is one of the st northerly stations manned throughout the year. Pretty dull life with 50° or more below and sometimes 50 in. of snow in one month? Nope. They spend their time at the station reading up on weather, planning for summer and listening to the hams throughout the Northern Hemisphere.

Yes, this ore development has everything, including a site not far from here—70 miles—which is a possible power source. When agreements are all in order Eaton Canyon (see map) will provide all the power needed to run the show here; and any other act that moves up this way—and there will be more. The total drop in the space of a couple of miles is 335 ft. One drop is 90 ft and another is 70 ft. The rest vary.

This future power site was probably not viewed by a white man between the time Dr. Low saw it in 1893 and when Timmins' men glimpsed it in 1947. But has it possibilities! It has a minimum

(CONTINUED ON PAGE 160)

Industrial Briefs . . .

• **BUYS WESTERN PLANT**—The Westinghouse Electric Corp. has announced its decision to purchase the 57-acre Sunnyvale, Calif., Works which was leased 19 months ago from the Joshua Hendy Iron Works. Westinghouse assumed operation of the plant as of Mar. 1, 1947, under terms of a 10-year lease with the option to purchase by Nov. 1, 1948.

• **GRAY IRON FOUNDRY**—A new gray iron foundry has been occupied by the Huber Mfg. Co. of Marion, Ohio, manufacturers of road building and maintenance equipment. Part of a long-range building program which includes the new factory opened in the spring of 1947, the new foundry was under construction for 14 months.

• **CONSULTING SERVICE**—R. E. W. Harrison, vice-president of Chambersburg Engineering Co., has resigned to re-establish his consulting service with headquarters in New York. He will specialize in management engineering and will undertake assignments similar to those handled by the former business of Clarke-Harrison, Inc., Philadelphia management engineering firm, of which he was vice-president.

• **ACQUISITION**—The Buda Co., Harvey, Ill., has acquired the W. F. Hebard & Co., Chicago manufacturers of materials handling equipment. Hebard will be operated as a wholly owned subsidiary of the Buda Co. and manufacturing will be continued at the Hebard company.

• **EXPANSION** — The one-story addition to the cable manufacturing plant of the Triangle Conduit & Cable Corp. in New Brunswick, N. J., has just been completed by the Wigton-Abbott Corp. The new structure will provide 65,000 sq ft of additional production space and boiler and powerhouse facilities.

• **MOVES**—Charles C. Phelps Co., engineering equipment representatives, have moved their offices from New York to the First National Bank Bldg., 1 Exchange Place, Jersey City, retaining their present New York telephone number.

• **BRANCH OFFICE**—Luria Bros. & Co., Inc., has announced the opening of a branch office in San Francisco at 443 Pacific Gas & Electric Co. Bldg. Stanley Claster is district manager in charge of the new office.

• **TO HEAD GROUP**—W. B. Turner has been appointed commissioner of the Metal Lath Manufacturers Assn. in Cleveland. He has retired from the Inland Steel Products Co. after serving 15 years as manager of sales of the Fireproof Materials Div.

• **ROD DISTRIBUTOR**—Fulton Supply Co., Atlanta, has been appointed distributors for brass and bronze rods by Titan Metal Mfg. Co., Bellefonte, Pa.

• **ELECTS OFFICERS**—The Northern California chapter of the Institute of Scrap Iron & Steel has announced the re-election of Paul Learner, the Learner Co., Alameda, as president and Frank Malley, Associated Iron & Metal Co., Oakland, as vice-president. David G. Robbins, Robbins Metal Co., Oakland, was newly elected as secretary-treasurer.

• **EASTERN OFFICE**—The Interstate Steel Co. with headquarters at Chicago has announced a new Philadelphia office at 6701 North Broad St. headed by Saul Bradburd.

• **REPRESENTATIVE**—The Boye & Emmes Machine Tool Co., Cincinnati, manufacturers of engine lathes, has appointed the Frank A. Meyer Co., 401 N. Broad St., Philadelphia, as their exclusive sales representative in eastern Pennsylvania, southern New Jersey and Delaware.

(CONTINUED FROM PAGE 159)

winter flow of 5000 cu ft per second. And it is only 25 miles from Eclipse camp, the tip of the development at this time.

Mining ore up here will be the simplest problem. People here kick ore around when they walk. The camp site is right on top of a good deposit. One day when the men were trying out a churn drill, after part of the camp site was built, they ran into a good ore bed down about 10 ft. It is a good bet that when the townsite is laid out permanently it will be drilled before the building begins.

There is a lot of guessing up here as to who will finally use the ore to come out. Great Britain will take some. Certainly the Nova Scotia steel industry will take some—look at the map and see that it is a natural for them. But they all think here that the United States will take a lot. That's where George Humphrey comes in.

At first it is planned to take ou 10 million tons a year—later shipments they hope will run 20 million tons. It is doubtful if an smelting will be done up here These people are miners. Wha they want to do is get the ore ou and let someone else use it. National Steel will probably be usin ore from here and so may othe steel companies in the Unite States.

The ore situation is not as ba in the States as it has bee painted. Neither is it as good a some speakers in the industry hav stated. The real answer—fo peacetime operation — is somewhere in between. But war? Tha is another matter. And preparedness? That is still another matte

Both the Canadian and the U. S government see eye-to-eye on th need for hemispheric defense an protection. Iron ore is an impo tant factor in such security. Onl the worst pessimist can come u here and go away like a sad sac wondering who will or who wi not get the ore.

Someone will get it and use i And it won't be expensive in vie of future ore demand. It is a open pit stuff. And if the Seawa goes through it is more than 50-50 chance that this ore will b competitive to beneficiated ore i the States and even open pit o from Mesabi—when all factors a figured in.

Don't be confused by the inte

hange of Quebec and Labrador in is story—the boundaries are ery irregular. Within a few hunred feet of this camp you hit abrador. Of the 300 million tons f ore developed 200 million tons re in New Quebec and 100 million ons are in Labrador. This ratio s not fixed—it will change as nore exploration continues. The amp site here is right smack in he middle of the ore zone. Its atitude is about 54° 50′N. and ongitude, 66° 50′W.

It gets cold up here—in the winer. And there is snow—some imes drifted 15 ft over which the snowmobiles go at 35 mph. But when the ore is being mined the winter months will be used for repair and maintenance.

Even a confirmed pessimist has to agree that Quebec-Labrador ore discoveries are big; they are needed; they are important. The boys up here know human nature. Everything has been checked and rechecked. The Hanna firm does all the formal and systematic laboratory analysis of the drillings. Every last sample is up here for the cynics to see and to check if they ever talk business on a lease basis or want to get cut in.

ORE STATISTICS

Montreal

• • • **Dry analyses of Quebec-Labrador ore in the 300-million ton proved project showing percentages are as follows:**

Weighted Average—Quebec-Labrador

Fe	Mn	P	S	Silica
59.1	1.33	.084	.012	6.86

Typical Manganiferous (Ruth Lake No. 3)

Fe	Mn	P	S	Silica
50.6	8.08	.171	.010	5.79

Typical High Grade (Burnt Creek No. 6)

Fe	Mn	P	S	Silica
66.3	.29	.025	.015	2.56

Typical Low Grade (Fleming No. 5)

Fe	Mn	P	S	Silica
57.1	1.16	.080	.010	11.26

Canadian Steelmaking Lags Demand Despite Impressive Expansion

Reduction of U. S. Imports Seen Tightening Squeeze On Most Consumers

° ° °

By F. SANDERSON

Canadian Correspondent

° ° °

oronto

• • • **Despite impressive** expanion of pig iron and ingot capaity since 1940, Canadian steelnaking has hardly kept pace with lemand. Canadian steel firms have mbitious plans for further exansion which they will lay before he government at an early date. ut that isn't helping the hard ressed Canadian consumers now. eduction in imports from the Jnited States (The Iron Age, Oct. 1, p. 109) is expected to multiply heir procurement problems, as vell as put more pressure on Caadian producers for more output.

Canada, at present, has 14 blast urnaces, with total rated capacity f 2,743,760 net tons per year and apacity for the production of teel ingots totalling 3,490,000 net ons a year. Finishing capacity, owever, is in excess of raw mateial supply with the result that utput of finished products is ampered by lack of steel. Canaian mills, however, are maintainng operations at virtual capacity nd it is estimated that pig iron roduction for 1948 will reach the ll time high record total of about million tons and steel ingots, 1 million tons.

From reliable sources at Ottawa is learned that plans for a large crease in Canada's steelmaking nd pig iron capacity are under onsideration between the governent and representatives of the g producing companies, Steel o. of Canada Ltd., and Dominion Foundries & Steel Ltd., Hamilton; Algoma Steel Corp., Sault Ste. Marie, and Dominion Steel & Coal Corp.; Sydney, N. S.

It is understood that plans for the proposed increases will be laid before the government at an early date and when these are ready it is said the government will lose no time in deciding on what expansion is desirable and necessary and what amount of government assistance, if any, will be required.

The question of increased steel capacity has been given a priority in government planning recently. It is apparent that Canada will be faced with a large defense budget over the next few years and large quantities of steel will be required. However, it is pointed out that enlarged production capacity will be justified on commercial rather than defense grounds.

Defense Minister Claxton has pointed out that "the situation is such that serious consideration must be given to the question of building additional capacity. With the development of the country that we can look forward to if there is no war, it would appear as if a reasonable expansion of steel production would be in the interest of the country for peacetime as well as defense purposes."

At the beginning of 1940 Canada's rated capacity for production of pig iron was 1,595,962 net tons a year and since that time capacity has been increased by approximately 1,145,000 tons, while at the same time rated capacity for steel ingots has been jumped just over 900,000 tons a year since the beginning of the war. In addition to the sharp jump in Canadian production imports from the United States have been running at a rate of a million tons annually.

Despite higher domestic output and importations, the supply of iron and steel in Canada has been well under meeting requirements, and with the proposed cut in imports for fourth quarter the overall supply situation will become even more critical. Against reduced supply there are numerous big projects which require large tonnages of steel and will continue to be major consumers for years to come. These undertakings are seriously handicapped today and to provide their needs in the future steelmaking capacity in this country will have to be jumped considerably.

While expansion of Canada's steel industry is under consideration at this time and some early action is expected, it will take at least 2 years for construction of necessary blast furnaces and other units to bring capacity to a rate that will meet all domestic requirements and leave a surplus for the export markets.

The agreed reduction in Canada's steel imports from the United States indicates that the total imports from across the line will be reduced to approximately 800,000 tons for the current year against former rates of a million tons or better annually. It also means that greater pressure will be placed on Canadian producers to meet the enlarged demand, although the feeling in this country is that companies using iron or steel as their chief raw material will be forced to sharply curb operations and production of consumer goods will be cut accordingly.

Canadian defense authorities had no comment to make regarding the reduction in imports of steel, although the announcement came just 10 days after Defense Minister Claxton told the Canadian Ordnance Association in Montreal that steel is the most important single factor governing the extent of Canada's defense preparedness and war potential.

Mr. Howe further pointed out that the Canadian government had under study plans for expansion of this country's steel industry.

The Canada-United States agreement allows, if necessary, for Canada to apply whatever controls may be necessary to carry out the reduced import plans, and some of these controls will be exercised during the next three months.

Columbia Steel Co. Begins Construction Of Another CR Mill

Los Angeles

• • • **Columbia Steel Co.** last week took possession from War Assets Administration of the site of its future cold-rolled sheet mill in the Los Angeles area. First announcement of this project was made about a year ago.

This site, located near Columbia's existing steel mill at Torrance, Calif., consists of more than 200 acres of land and various buildings which were used to house an aluminum plant during the war. Reconstruction work will start immediately, according to a statement by J. Lester Perry, president.

The new mill will have an annual capacity for the production of over 300,000 tons of cold-rolled sheets of various kinds. The new sheet mill will be similar to Columbia's Pittsburg, Calif., mill, which has just been formally opened, except that its output will be confined to sheets. With this mill Columbia hopes to take full competitive advantage of the demand for sheets in the Los Angeles area. Today there is no sheet mill of this character in Southern California.

The equipment for the new mill has been under order for many months, Mr. Perry said, and is now being manufactured. It is expected that the mill will be completed and in operation some time in 1950. The mill will employ approximately 1500 men.

Blast Furnace Production

AMERICAN IRON AND STEEL INSTITUTE
350 Fifth Avenue, New York 1, N. Y.

Blast Furnace Capacity and Production—Net Tons

AUGUST - 1948
Month

	Number of companies	Annual blast furnace capacity	Production							
			Pig Iron		Ferro manganese and spiegel		Total			
									Percent of capacity	
			Current month	Year to date	Current Month	Year to date	Current month	Year to date	Current month	Year to date
Distribution by Districts:										
Eastern	11	13,093,560	988,676	7,163,839	32,474	229,699	1,021,150	7,393,538	92.0	84.7
Pittsburgh-Youngstown	17	25,588,120	2,068,259	15,191,829	13,068	162,957	2,081,327	15,354,786	96.0	90.0
Cleveland-Detroit	6	6,495,000	521,352	3,899,345	-	-	521,352	3,899,345	94.7	90.0
Chicago	7	14,700,290	1,088,394	8,009,707	-	10,190	1,088,394	8,019,897	87.4	81.8
Southern	8	4,949,660	374,204	2,907,646	4,866	60,968	379,070	2,968,614	90.4	89.9
Western	3	2,612,300	163,319	1,479,905	-	-	163,319	1,479,905	73.8	85.0
Total	35	67,438,930	5,204,204	38,652,271	50,408	463,814	5,254,612	39,116,085	92.0	87.0

AMERICAN IRON AND STEEL INSTITUTE
350 Fifth Avenue, New York 1, N. Y.

Blast Furnace Capacity and Production—Net Tons

SEPTEMBER - 1948
Month

	Number of companies	Annual blast furnace capacity	Production							
			Pig Iron		Ferro manganese and spiegel		Total			
									Percent of capacity	
			Current month	Year to date	Current Month	Year to date	Current month	Year to date	Current month	Year to date
Distribution by Districts:										
Eastern	11	13,093,560	1,008,804	8,172,643	25,474	255,173	1,034,278	8,427,816	96.5	86.
Pittsburgh-Youngstown	17	25,588,120	1,997,301	17,189,130	12,785	175,742	2,010,086	17,364,872	96.0	90.
Cleveland-Detroit	6	6,495,000	532,433	4,431,778	-	-	532,433	4,431,778	100.1	91.
Chicago	7	14,700,290	1,075,099	9,084,806	-	10,190	1,075,099	9,094,996	89.3	82.
Southern	8	4,949,660	382,037	x 3,298,283	5,066	66,034	387,103	x 3,364,317	95.5	90.
Western	3	2,612,300	168,534	1,648,439	-	-	168,534	1,648,439	78.8	84.
Total	35	67,438,930	5,164,208	x43,825,079	43,325	507,139	5,207,533	x 44,332,218	94.3	87.

Third Quarter Steel Profits Rose Sharply Over 1947 Period

Some Doubled But Few Firms Raised Dividends; Funds For Replacement Up

° ° °

By GEORGE F. SULLIVAN
Pittsburgh Regional Editor

° ° °

Pittsburgh

• • • **In the quarter** just ended he steel industry earned over 60 pct more than it did in the corresponding 3 months of 1947. For many steelmakers the third quarter and the first 9 months of this year set profit and prdouction records. But many steel executives claim these profits are not as healthy as they look. A lot of them backed their theory by failng to raise dividends

The steel consumer is likely to conclude that if many large steel companies don't consider profits big enough to pay out more cash to stockholders, then current steel prices may not hold. That is, any advance in steelmaking costs threatens steel prices.

Had it not been for substantial ncreases in depreciation reserves current profits would have been even higher. But they wouldn't look quite as good on the whole if all steel companies had made correspondingly heavy additions to reserves. Steel companies don't all agree on the method of setting aside these funds. They do agree that depreciation reserves based on original cost won't replace the original plant and equipment today.

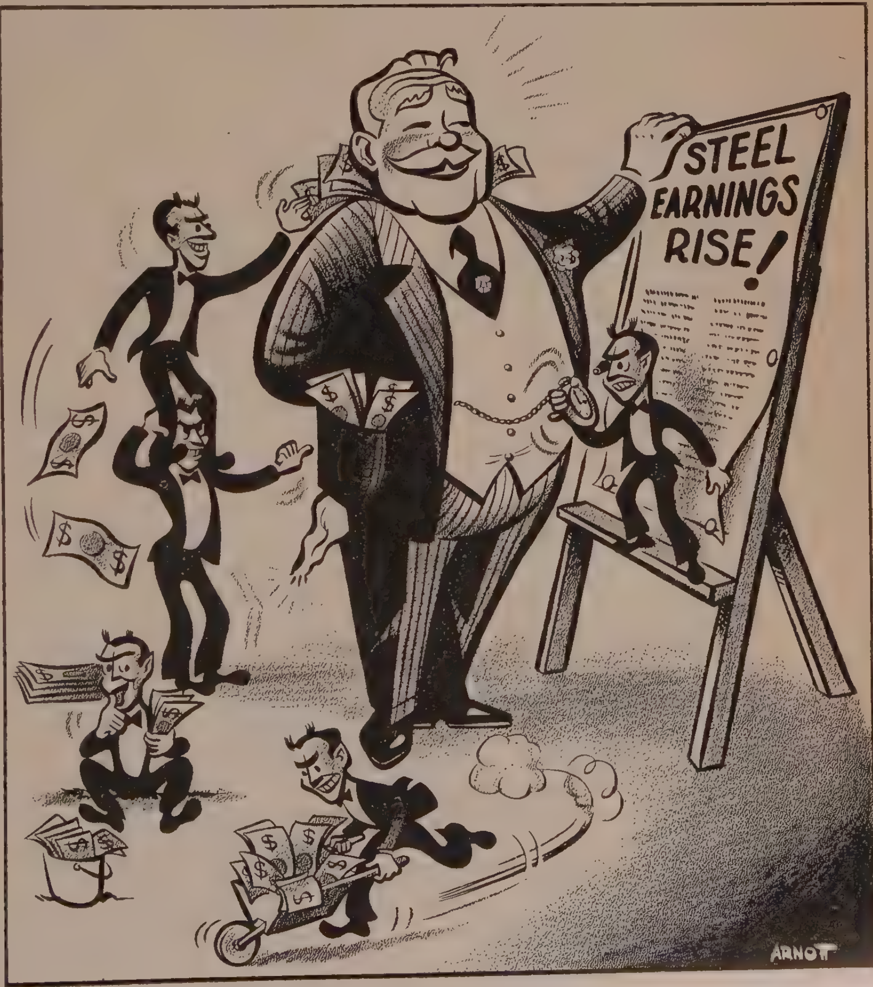
Recognizing this fact, U. S. Steel decided that instead of adding an extra 30 pct to the depreciation rate recognized by the Internal Revenue Dept, it would use a figure of 60 pct and make it retroactive to Jan. 1, 1948. National Steel set aside $2.5 million for this purpose in the third quarter, for a total of $6.5 million for the first 9 months of 1948. Inland earmarked over $2 million for possible price declines. Jones & Laughlin also increased its depreciation rate.

U. S. Steel has gone a step further. It is trying to get Washington to recognize the inadequacy of the authorized depreciation reserves. If it succeeds it will accomplish two things in addition to getting income tax credit for the additional funds it sets aside. It will take this extra money out of the disputed area. It will keep it from looking to stockholders like a plum ready for picking. And when the Steelworkers talk about a new contract next year they won't have one argument they had this spring. It will be recalled that the union asserted that $26.3 million set aside by the corporation in 1947 as extra depreciation reserve should be considered as part of profits. Why, said the union, should we recognize a practice which the Federal Government does not?

Those who criticize the industry for not parting with more of its additional profits assert that for the most, expansion or modernization programs are nearly finished. Steelmakers say that statement is inaccurate, that the money must be retained as "seed" for new plants. On these programs, for instance, U. S. Steel still has $296 million to spend during the next 2 years. Over a slightly longer period J & L will spend $120 million. Bethlehem has $88 milion to go on its modernization program.

This melts no ice in Wall Street where disappointment over U. S.

Looking Good!



STEEL COMPANY EARNINGS—1948 AND 1947

COMPANY	Third Quarter '48	Third Quarter '47	Nine Months '48	Nine Months '47
U. S. Steel	$34,599,132	$28,735,082	$88,042,150	$97,306,461
Bethlehem Steel	22,584,752	10,211,336	53,183,858	38,710,728
Republic Steel	12,874,398	6,380,016	29,812,788	23,111,631
Jones & Laughlin	8,757,416	4,979,482	20,249,317	16,682,738
National Steel	11,175,400	6,802,840	27,201,435	19,903,655
Inland Steel	9,811,133	7,670,295	24,819,526	21,791,583
Armco Steel	8,347,966	5,934,418	20,372,369	18,165,398
Sharon Steel	2,836,500	1,371,185	6,614,230	4,756,350
Wheeling Steel	3,866,913	2,640,189	9,691,645	8,430,261
Colorado Fuel & Iron	2,425,660	1,397,904	....	....
Crucible Steel	989,754	23,639	2,191,297	1,291,663
Pittsburgh Steel	2,167,804	947,475	3,892,780	2,834,362
Lukens Steel	441,089	268,762	1,185,671	758,004
Alan Wood Steel	1,109,534	1,433,121	2,383,890	1,433,121
Allegheny Ludlum	1,492,157	1,036,332	4,423,972	4,553,972
Detroit Steel	1,205,706	906,339	3,703,748	3,653,772
Continental Steel	407,838	357,036	1,027,509	998,490
Acme Steel	1,660,269	1,388,194	5,102,269	5,525,044
Barium Steel	841,179	401,280	2,057,307	1,190,403
Bliss & Laughlin	987,000	1,246,467	....	....
Carpenter Steel	522,508	250,631	....	....
Superior Steel	247,848	282,064	826,698	941,415
Keystone Steel & Wire	860,238	816,456	....	....
Portsmouth Steel	1,107,101	907,451	3,040,561	2,941,131

Steel's failure to declare a higher dividend (as Republic and J & L did) depressed the market for days. Wall Streeters are only too aware that the steel companies have not often turned to them for funds in recent years. Last August Inland borrowed $20 million from seven insurance companies. In mid-September Lukens disclosed plans for a $4 million insurance company loan. Jones & Laughlin has a $40 million bank credit for its new programs through 1950. Customers of Allegheny Ludlum and McLouth Steel will put up a lot of the money to finance new capacity for these firms.

Past experience indicates that while most of the effects of the third round wage increase are under the belts of the steelmakers, these were not all reflected in third quarter earnings reports. A few more, in products and services bought, are still to come. A further rail rate increase is in the wind. However, with higher production in the fourth quarter, earnings for the period are expected to be at least as good as those for the period just reported upon.

Correction

New York

• • • The following telegram has been received from Great Lakes Steel Corp.: "In your issue of Iron Age under date of Oct. 21 on page 119, we wish to call your attention to the note at the bottom of the graph which you show on this page and which reads: 'Great Lakes hot-rolled 16 gage costs $23 a ton more than cold-rolled 16 gage.' This statement is wrong and misleading and we feel a correction should be made. The correct comparison of our prices for 16 gage coils is $4.15 per 100 lb for hot-rolled and $4.25 for cold-rolled. Hot-rolled sheets are understood by the trade to mean material which is in plain black finish, not pickled. Size extras for this grade of material were advanced by us under date of Oct. 1, $3 to $9 per net ton. The increase on 16 gage was $4 per ton (from $3.95 to $4.15 per 100 lb). We are not attempting to price a product but are simply making specific corrections within a small percentage of certain of our own products. Hot-rolled sheets and strip account for approximately 15 pct to 20 pct of Great Lakes' output and for less than 10 pct if applied to National Steel Corp. Signed James A. Rowan, Great Lakes Steel Corp."

Stainless Producers Agree to Stop Trade Restraint Practices

Washington

• • • **A total of 18 producers of** stainless steel have agreed to stop fixing prices and using other restraints of trade, the Justice Dept. has announced.

The agreement was brought about by the entering of a final judgment, to which the stainless steel producers agreed, in a civil antitrust suit before the federal court at Trenton, N. J.

The judgment specifically enjoins the producers from agreeing to fix prices or to utilize practices facilitating price-fixing and from exchanging so-called advance informations which the Justice Dept. said had been used to arrange uniform bidding on government contracts.

Patents covering certain manufacturing operations now must be made available to any applicant offering reasonable royalties, under the terms of the judgment.

Firms consenting to the judgment are: Allegheny Ludlum Steel Corp., Brackenridge, Pa.; Carnegie-Illinois Steel Corp., Pittsburgh; Carpenter Steel Co., Reading, Pa.; Crucible Steel Co. of America, New York; Republic Steel Corp., Cleveland; Eastern Stainless Steel Corp., Baltimore; Rustless Iron & Steel Corp., Baltimore, now a division of Armco Steel Corp.; Armco Steel Corp., Middletown, Ohio; Bethlehem Steel Co., Bethlehem; Sharon Steel Corp., Sharon, Pa.; Firth Sterling Steel Co., McKeesport, Pa.; Jessop Steel Co., Washington, Pa.; Latrobe Electric Steel Co., Latrobe, Pa.; Midvale Co., Philadelphia; Pittsburgh Steel Co., Pittsburgh; Superior Steel Corp., Carnegie, Pa.; Timken Roller Bearing Co., Canton, Ohio; Universal-Cyclops Steel Corp., Bridgeville, Pa.

Gains Safety Council Post

Youngstown

• • • **Joseph F. Collins,** safety supervisor for the eastern district, Youngstown Sheet & Tube Co., is the new chairman of the metals section of National Safety Council.

Rearmament Program Exerting Little Demand for Magnesium

But Output This Year Might Equal 50 Million lb. For All Applications

◦ ◦ ◦

By JOHN ANTHONY
Eastern Regional Editor

◦ ◦ ◦

New York

• • • **The demand for** magnesium products by the rearmament program has not yet begun to exert an important effect on the production of the 52 companies who are now engaged in production, fabrication, casting or processing the metal. It is estimated by industry members, however, that total consumption of all forms of magnesium produced from ingots and scrap may reach 40 to 50 million lb this year, almost wholly for civilian applications.

Military requirements have been slow in getting under way, but the services and the aircraft manufacturers have placed a large number of engineering and development contracts with members of the industry, some calling for the production of prototypes that may later be ordered in large numbers.

The heaviest demand for magnesium products from the 70-group airforce is expected to be in auxiliary aircraft equipment and lightweight military equipment of all types designed to be airborne. A spectacular example of current military strategy is the building of 10 cu yd dump truck bodies of magnesium by Brooks & Perkins, Inc., Detroit. Demand is also growing from producers of consumer products who are handicapped by current shortages of metals and fear that this condition will grow worse if cold war tension heightens.

Prices of magnesium products have been relatively unchanged since the end of the war. Each rise in competitive metals prices places magnesium producers in a more advantageous commercial position. Consumers say that magnesium extrusions are now roughly competitive with aluminum on a volumetric basis. In heavy sections, they are cheaper.

Foundries say that the recent rise in prices of virgin aluminum ingots makes magnesium ingots competitive. Aluminum alloy ingot 356 is now sold at 18.6¢, which approaches the price of magnesium alloy ingot of comparable properties at 23¢. The tonnage of primary aluminum ingot available now to foundries is strictly limited, and secondary aluminum prices are 8¢ to 10¢ higher, making aluminum castings produced from secondary more costly than magnesium.

The Dow Chemical Co. plant at Freeport, Tex. is the sole primary producer of magnesium in the country. This plant has a capacity of 18 million lb per year, and industry sources estimate that it is operating at 30 pct to 50 pct of capacity.

Adjacent to it is a government-owned plant of equivalent capacity now being held in standby condition. There are seven other standby reduction plants with a combined capacity of 232 million lb per year. These plants are under the supervision of the Public Works Administration until next March, at which time control over them may be taken by the armed services.

The huge plant at Henderson, Nev. operated during the war by Basic Magnesium Inc. has had much of its equipment cannibalized and 41 tenants are now occupying the premises. There has been some talk in military circles of the possibility of placing it in operating condition, but industry members don't place much credence in it, short of a declaration of war.

It is apparent that the primary magnesium capacity represented by standby plant is well above civilian rearmament needs for some time to come. But the pinch will come in fabricating, foundry and processing facilities. Many of the companies active in magnesium during the war have left the field. Commercial requirements for magnesium were not adequate to support their facilities and the demand was heavy for their prewar products. Many of these firms are expected to be unwilling to return to magnesium production and government pressure may be required to assure adequate facilities.

Many of the present fabricators, foundries and processors of magnesium are expanding their plant floor space to meet the expected growth of military demand. Those who have doubled their plant space say that this represents about a threefold expansion as the use of heavy equipment is not now at capacity. Additional equipment is also being installed.

Of the 52 companies now active in the field, there is only one producer of sheets and plates, and three producers of extruded shapes.

There are important developments under way that can be expected to enlarge the scope of magnesium alloy parts as load bearing numbers. A strength of 75,000 psi has been demonstrated for certain magnesium alloys. It is learned that additional research is being sponsored by the armed services to develop even higher mechanical properties.

A feature of the industry's op-

Standby Magnesium Plants

Plant	*Annual Capacity Millions of Pounds*	*Wartime Operator*
Velasco, Tex.	72	Dow Chemical Co.
Spokane, Wash.	48	Electro Metallurgical Co.
Painesville, Ohio	36	Diamond Alkali Co.
Freeport, Tex.	18	Dow Chemical Co.
Luckey, Ohio	10	Magnesium Reduction Co.
Wingdale, N. Y.	10	American Magnesium Co.
Manteca, Calif.	10	Kaiser Co.
Canaan, Conn.	10	New England Lime Co.

erations since the end of the war has been its heavy use of the surplus magnesium war equipment as scrap. It was possible for foundries to buy at surplus prices large tonnages of the castings they had produced. As they knew the analysis of such castings, it was quite simple for them to remelt it for current production. This naturally reduced their primary and secondary ingot requirements. Most of this scrap has now been absorbed and future production must come largely from the ingot reduction plants. Dow Chemical Co. is reported to have been one of the heaviest buyers of scrap.

Some 58 million lb of magnesium has been tied up in the Army Chemical Corps' stock of incendiary bombs. For some time the industry has been seeking to have this material placed on the market under the demilitarization program for use as scrap. It appears now that the metal will go into the strategic stockpile.

Ever since the end of the war, the industry has been very active in seeking out new consumer applications for the metal under the leadership of the 4-year-old Magnesium Assn. and its executive vice-president, T. W. Atkins. An important step in this direction has been taken by the development of plated coatings for magnesium. The development is still in its early stages and plated coatings for magnesium are not yet available on a heavy production basis.

Dept. of Commerce figures for shipments of magnesium products in August show 703,000 lb of castings and 497,000 lb of wrought products. Unfilled orders for castings totaled 2.8 million lb in that month.

50 YEARS AGO

THE IRON AGE, *November 2, 1898*

- "Andrew Carnegie, who has just returned in the best of health from his usual summer stay in Scotland, granted THE IRON AGE an interview during which he was asked whether our export trade in iron and steel is likely to be permanent. To this he replied, 'Yes, I notice THE IRON AGE has referred often to this subject. Our export trade in iron and steel has come to stay, and it is only the beginning. The relative positions of nations has been my study for a quarter of a century, and I confess that I never expected the United States to reach its present position in my time.' "

- **"The Reeves Pulley Co. of Columbus, Ind., recently completed an unusually large wood split pulley weighing 9000 lb and having a diameter of 16 ft. Entering into its construction were 5850 pieces of wood, 192 ¾ x 30 in. compression bolts, 500 lb of nails and 175 lb of glue. The order was completed in 10 days."**

- "The manufacturers of this country, as a rule, are inclined to impart information freely concerning methods and processes which they use. Our tremendous progress has undoubtedly been accelerated by the willingness with which experiences have been exchanged and the freedom with which faulty methods have been criticized when found in use."

- **"In spite of drastic legislation in Germany against unfair competition, it seems there are certain competitive dodges remaining. An example is the ink industry where some manufacturers are packing a bottle of liqueur in each case of ink so as to encourage prompt unpacking upon receipt. This practice of encouraging packers to regale themselves after their arduous work might have remained undiscovered but things have come to such a pass that ink making companies are receiving letters stating, for example, 'You have been sending chartruse; we prefer benedictine.' "**

New England Scrap Drive Passes Quarter of Goal

Boston

• • • **The New England** Council's drive to uncover 100,000 tons of scrap iron and steel has reached 27,795 tons according to the state drive chairman report at a recent meeting of the group at the Harvard Club here.

Secretary of Commerce Charles Sawyer, a guest speaker, declared "it is vital that we get scrap. Unless it is obtained in substantial quantities, there is a possibility of partial shutdowns in some steel plants this winter."

Construction Steel

• • • **Fabricated steel awards** this week included the following:

1000 Tons, Milwaukee, sports arena to Milwaukee Bridge Co., Milwaukee.
800 Tons, Indianapolis, power house for the Indiana Power & Light Co. to Central States Bridge & Structural Co., Indianapolis.
600 Tons, Olive Hill, Ky., building for General Refractories Co., to Bethlehem Steel Co., Inc., Bethlehem.
505 Tons, Chippewa Co., Wis., State Highway bridge section B-1-17-8-2-C2 to Bethlehem Steel Co., Inc., Bethlehem.
185 Tons, Waupon, Wis., power house to Vulcan Mfg. Co., Fond du Lac, Wis.
170 Tons, Danville, Pa., dietary building for Danville State Hospital, to Reading Steel Products Co., Reading, Pa.

• • • **Fabricated steel inquiries** this week included the following:

2680 Tons, Riverside Junction, N. D., tunnel liners through U. S. Engineers Garrison District.
1000 Tons, Fredensville, Pa., plant for New Jersey Zinc Co.
430 Tons, Ft. Randall, S. D., reservoir outlet work U. S. Bureau of Reclamation.
200 Tons, Niagara Falls, N. Y., building for E. I. duPont de Nemours, Inc., Nov. 5.
150 Tons, Cincinnati, Cincinnati Gas & Electric Co., through Day & Zimmerman, Philadelphia.
150 Tons, Philadelphia, Mauch-Hill Corp., through Turner Construction Co., Philadelphia.

• • • **Reinforcing bar inquiries** this week included the following:

2161 Tons, Friant, Calif., construction Friant-Kern Canal, Bureau of Reclamation, Friant, Spec. 2432, bids to Nov. 9.
975 Tons, Antioch, Calif., construction, Delta-Mendota Canal, between Patterson and Newman, Calif., Bureau of Reclamation, Antioch, bids to Dec. 3.
450 Tons, Philadelphia, school building at Princeton & Hawthorne Sts., through McCloskey & Co., Philadelphia.
261 Tons, Los Angeles, road construction on North Broadway between Temple St. and Sunset Blvd., Calif. Div. of Highways, Los Angeles, bids to Nov. 26.
250 Tons, Lancaster County, Pa., Pennsylvania Turnpike Section 24-B, C. W. Good, Lancaster, Pa., low bidder.
112 Tons, Coos Co., Ore., viaduct, Delmar overcrossing Southern Pacific R.R. near Coquille, Oregon State Highway Commission, Portland.

Weekly Gallup Polls . . .

French Communists and De Gaulle's Party Show Gain

inceton, N. J.

• • **Elections in France** for the uncil of the Republic highlight e confused political situation in at nation. Results of the voting ght easily be misread as indi-ting the De Gaullists holding ound, a loss in popular strength r the Communists, gains for the cialists, and large losses for the pular Republicans, according George Gallup, director, Ameri-n Institute of Public Opinion. ie fact is that the ballots were st not by the general public but ly by municipal councilmen who re elected to their offices a year o. The election was, therefore, t representative of current pop-ir opinion.

Latest surveys of representative ench voters by the French In-tute of Public Opinion (Gallup ll) point a different picture of itical attitudes.

French institute figures show it since last July both the Com-nists and General Charles de ulle's Rally of the French Peo- have made substantial gains strength. Both parties have wn stronger at the expense of port for the so-called Third rce, the political alignment now nprising the government.

Moreover, the French surveys eal that the French people have v reached a point where they nk there should be new na-nal elections, the first since vember, 1946. This means that Gaulle's constantly reiterated nand for a general vote is mak- headway with rank and file nch voters.

e Gaulle wants new elections eduled so that his party can ie to a showdown with the nmunists, but the French insti-'s current figures show that two parties today would run a k and neck race. The present ernment opposes holding elec-s now.

f the 80 pct of eligible citizens who said in a late September survey that they would probably vote in new elections, the French institute asked: "For which party would you vote?"

The following table compares today's answers with a similar poll last July and with the 1946 election results:

Party	1946 Election Pct	July, 1948 Pct	TODAY Pct
Communists	28	25	30.5
Third Force:			
Socialists	18	16	16—
Rally of the Left	10	8	8—
M.R.P. (Catholic)	26	14	9—
R.P.F. (deGaulle)	—	25	29.5
P.R.L. (Rightist)	12	6	4—
Other parties	6	6	3—

A representative cross section of French voters was also asked:

"Do you think that the National Assembly should or should not be dissolved and new elections held?"

The answers, compared with a similar question in July, follow:

Opinion Survey Also Indicates Majority French Rank and File Favor New National Elections

° ° °

	July, 1948 Pct	TODAY Pct
Hold Elections	29	51
Do not hold elections	37	27
No Opinion	34	22

Analysis of the answers reveals that Socialist and Popular Republican voters oppose new elections, while a majority of all other parties approve.

The present National Assembly was elected for a five year term and can be dissolved if the government is defeated twice within 18 months on a vote of confidence or a vote of censure. To date government cabinets have resigned without forcing a shutdown.

Another way in which general elections could come about would be for the National Assembly to change the law determining its composition and manner of election.

Strikes in France Change Wages, Prices, Currency

Paris

• • • **Coal and steel** strikes have been a tough blow to French steel output.

While a wage increase of about 25 pct has been instrumental in settling the iron and steel strike in the eastern part of the country where about 90 pct of the pig iron and 60 pct of the steel are produced, the coal situation still remains acute.

Meanwhile numerous price increases have been put into effect on industrial materials. Coal has been increased in price by 18.9 pct while cement is up 14.5 pct; electricity, 19.5 pct; gas, 25 pct; and steel, 21.75 pct. Tubing is up 8.5 to 9.5 pct and wire products 10 to 12 pct.

Effective Oct. 18, new rates of exchange have been fixed, with the dollar going at 264 francs. The rate was established between the so-called official rate of 264 francs and the free rate of 313 francs. The official rate is used only to determine the average rate if the free rate is of changing value.

Willys-Overland Moves Closer to Integration

Toledo

• • • **Building of all** bodies for the Universal Jeep will begin at the Willys-Overland plant here by mid-December, according to William E. Paris, vice-president in charge of manufacturing.

Tools, dies, jigs, and fixtures for the Jeep body-building operation have been transferred to Toledo from the American Central Division, Avco Manufacturing Corp., where the Jeep bodies were previously built, Paris revealed. The move has been made as a further step in the integration of Willys-Overland manufacturing operations.

The American Central plant at Connersville, Ind., produced its last Jeep body early this month, after building a backlog of bodies to prevent interruption of Jeep production during the transfer and installation of equipment at the Willys-Overland plant.

The new body-building operation will require the addition of approximately 700 new employees to the Willys-Overland work force, Paris estimated.

French Trade Statistics

Paris

• • • **Exports of iron** ores for the first half of 1948 totaled 3,023,499 tons, according to statistics of the French Customs. Of this tonnage, 2,833,084 tons went to Belgium and Luxembourg, 108,317 tons to Great Britain and 77,170 tons to the Netherlands. Value of exports was set at approximately 1.9 billion francs.

Copper ranks first among mineral imports valued at 2.5 billion francs. This amounts to 13,875 tons of refined and 14,473 tons of electrolytic copper.

Manganese imports ran 119,485 tons valued at 614 million francs. Of this tonnage, 82,740 tons came from Morocco, 12,020 tons from the French zone of Germany, 11,732 tons from India, 6096 tons from South Africa, 5283 tons from Western Africa and 1614 tons from Algeria.

Eden Hits Nationalization

London

• • • **Anthony Eden,** a leader of the opposition in the House of Commons, described the government's proposal to nationalize the iron and steel industry as a very grave step, in addressing constituents at a recent meeting.

He asked whether the government could claim that under private ownership and management production was too low or that prices were unnecessarily high.

Month by month the industry is maintaining a record-breaking level of output, he added. Successive targets set by the government are being reached and surpassed. Output per man has increased by 28 pct since 1938. Prices since 1938 have risen by only 69 pct, although weekly earnings have increased by 107 pct.

In the field of labor relations, the steel industry had a record second to none. If the government persists in its policy of steel nationalization, it will be guilty of a crime against national recovery, Mr. Eden concluded.

Rust Designs and Erects Crude Oil Topping Units

Pittsburgh

• • • **Rust Engineering Co.** has contracted to design and erect two crude oil topping units for Petrol Refining, Inc. at its Texas City, Texas, refinery.

The new topping units will have a combined capacity of 50,000 barrels per day of crude oil and will produce a range of distillate products and reduced crude for charge to Petrol's existing Houdry catalytic cracking units. Complete design for this plant will be prepared by the Process Engineering Div. of The Rust Engineering Co.

Petrol's present operation at Texas City requires use of the Houdry bubble tower for combined fractionation of straight run and cracked streams. Installation of the new units will permit complete segregation of straight run and cracked streams and will increase materially operating flexibility as well as increase capacity. Further operating flexibility will be provided by designing the two topping units for independent operation.

Runs Sponge Iron Tests

Laramie, Wyo.

• • • **A series of tests** show that the Bureau of Mines is making progress in the production of sponge iron at their pilot plant here, according to T. L. Johnson and W. M. Mahan, bureau metallurgists.

The raw materials used in the tests were iron ore from Wyoming, California and Arizona; coals from Wyoming and Arizona; coke breeze, fine particles, from Colorado and local limestones.

When charred to remove volatile matter, the subbituminous coals were found to be better reducing agents than coke breeze. In some of the tests, limestone was mixed with the charge with the idea of lowering the sulfur content of the sponge iron, but its value, the metallurgists state, appears doubtful.

Joins Standards Staff

Washington

• • • **Andrew P. Massey** has been appointed to the staff of the Engineering Electronics Section of the National Bureau of Standards.

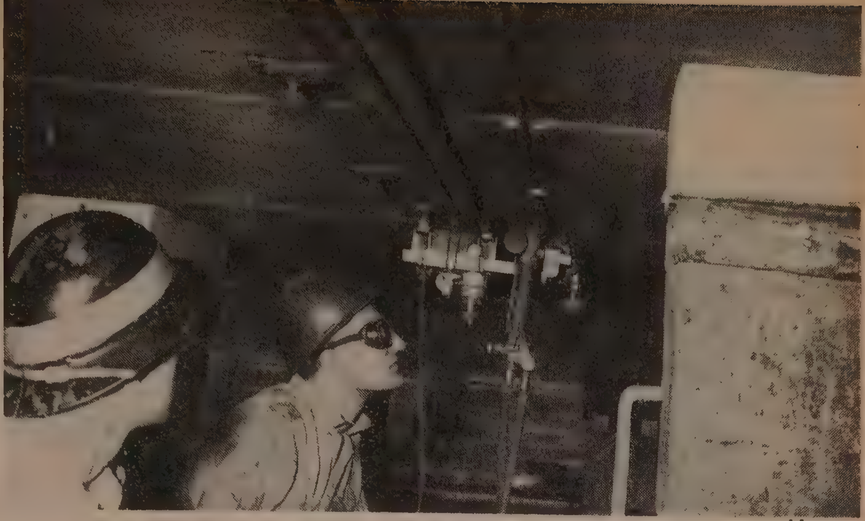
Coming Events

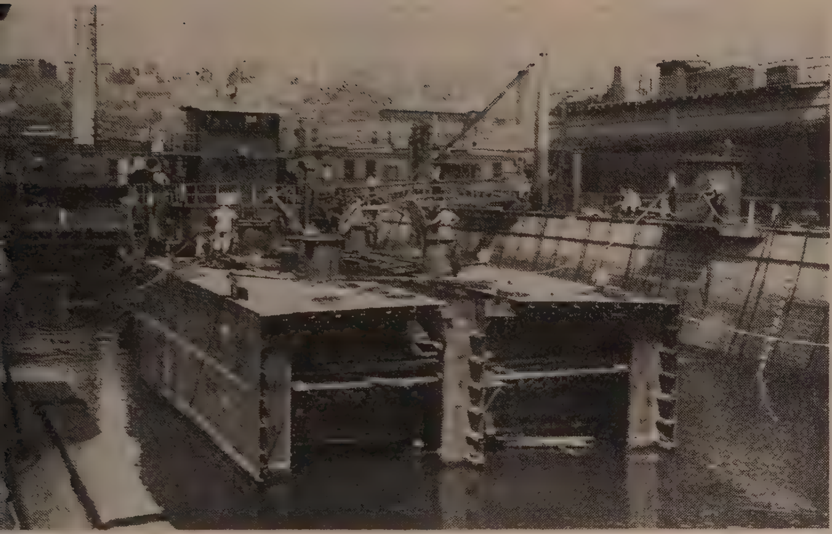
Nov. 4-5 **Society of Automotive Engineers,** fuels and lubricants meeting, Tulsa, Okla.
Nov. 4-6 **National Electronics Conference,** Chicago.
Nov. 14-17 **National Tool & Die Manufacturers Assn.,** annual meeting, Milwaukee.
Nov. 18-19 **National Founders Assn.,** annual meeting, Chicago.
Nov. 28-Dec. 3 **American Society of Mechanical Engineers,** annual meeting, New York.
Dec. 2-4 **Society for Experimental Stress Analysis,** annual meeting, New York.
Dec. 6-8 **Electric Welding Conference,** Detroit.

1949

Jan. 10-14 **Society of Automotive Engineers,** annual meeting, Detroit.
Jan. 10-14 **Material Handling Institute and American Society of Mechanical Engineers,** Materials Handling Show, Philadelphia.
Jan. 14—Malleable Founders' Society, semiannual meeting, Cleveland.

Todd Shipyard Adds 67 Pct Carrying Capacity to Barge With a Midsection Addition





ABOVE

A Higgins cutter is guided along a track on the ships bottom as it slices the vessel in half. Total length of the cut around the vessel is 96 ft. The bow is then towed away from the stern.

° ° °

LEFT

At another dock the new midsection has already been prefabricated. Here it is maneuvered into place against the stern. It consists of four halves, two on each side.

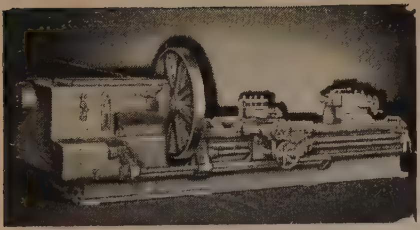
RIGHT

Now the bow is moved back into place and the new midsection is clamped in place so that it is flush with both the bow and stern before welding.

° ° °

BELOW

When completed, the vessel has been lengthened a total of 42½ ft. Its oil carrying capacity is increased by almost 67 pct. Before the lengthening operation the vessel carried 6000 bbl of oil. Now it transports 10,000 bbl. The entire job takes only one week.



SLIDING BED GAP LATHES HAVE ENCLOSED QUICK CHANGE BOX AND HARDENED STEEL BED WAYS

Two heavy duty sliding bed gap lathes recently redesigned by The R. K. LeBlond Machine Tool Co., Cincinnati 8, Ohio, are built with a totally enclosed, automatically lubricated quick change box, and hardened and ground steel bed ways front and rear.

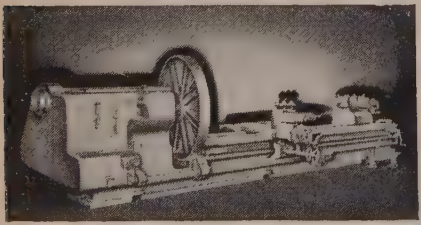
These improvements have been standard for some time on many LeBlond heavy duty engine and tool room lathes, and have been added to the 25″/50″ (above) and 32″/60″ (below) sliding bed gap lathes which are now said to be the most advanced of their type.

The new enclosed quick change box on both models offers two optional ranges of 48 feeds and threads. The entire mechanism is sealed in an oil-tight casting and is lubricated automatically, requiring no operator attention. It has steel gears throughout, and sliding gears are mounted on splined shafts.

The hardened ways test at 64 Rockwell C, retain lubricant and thereby reduce friction and wear, and are replaceable in the event of accidental damage. The front way is fitted to conform to the LeBlond compensating vee-way principle.

The LeBlond sliding bed gap lathe line includes a smaller model —16″/38″—which will in the future be equipped with hardened ways.

For additional information on the LeBlond sliding bed gap lathes, write today for your copy of SBG-101. Address The R. K. LeBlond Machine Tool Co., Cincinnati 8, O.



(Advertisement)

Country Export Quotas For Tinplate Revealed By Dept. of Commerce

Washington

• • • **Country export quotas** for tinplate for the first quarter of 1949 were revealed recently by the Dept. of Commerce through its Office of International Trade.

First Quarter, 1947

QUOTAS BY COUNTRY

ECA Countries	**1st Quarter, 1949**
Austria	1,000
Belgium-Luxembourg	3,900
Denmark	2,700
France	3,000
Germany-Bizone	—
Greece	1,000
Iceland	120
Italy	3,000
Ireland	400
Netherlands	10,200
Norway	5,800
Portugal	3,800
Sweden	3,500
Switzerland	3,350
Trieste	70
Turkey	1,000
	42,840
ECA Territories	
Belgian Congo	125
British West Indies	25
French Equatorial Africa	20
French Indo-China	275
French North Africa	4,200
French Oceania-New Caledonia	50
French West Africa	175
Hong Kong	—
Madagascar-Reunion	425
Malayan Federation	—
Netherlands Indies	1,400
Portuguese African Territory (Angola)	250
	6,945
Latin America	
Argentina	4,800
Bolivia	200
Brazil	9,500
Chile	2,700
Colombia	800
Costa Rica	23
Cuba	4,200
Dominican Republic	150
Ecuador	50
Guatemala	70
Haiti	23
Honduras	5
Mexico	3,110
Nicaragua	50
Panama	65
Paraguay	75
Peru	1,000
Salvador	23
Uruguay	1,100
Venezuela	800
	28,744
British Commonwealth	
Australia	11,650
Newfoundland	50
New Zealand	1,800
S. Rhodesia	—
Union of South Africa	7,500
	21,000
Far East	
China	2,500
Japan	1,700
Korea	325
Philippines	1,300
Siam	100
	5,925
Middle East	
Egypt	1,800
India	2,900
Iran	25
Israel	900
Lebanon	100
Pakistan	1,200
Syria	50
	6,975
Other Countries	
Ethiopia	—
Spain	400
	400
Contingency	171
	113,000

USE THE BEST BLADE THE BEST WAY ...Here's how
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CLEMSON BROS., INC.
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YOU'RE ALWAYS RIGHT WITH STAR

From the start you'll notice how much faster Star Blades cut metals . . . and with a truer cut, that leaves a cleaner surface. Tough, durable Star Blades lessen "time-outs" on the job, too. You see, every Star Blade is made of finest high-grade steel . . . precision-set teeth assure fast cutting and full side clearance. You'll appreciate the metal-cutting economies of Star Blades.

Your local jobber or distributor will be glad to help you choose a Star Blade to suit your job, ask him for the NEW Star Wall Chart for your shop . . . the Star Metal Cutting Booklet for pocket or tool kit — they both contain a world of useful information and are absolutely FREE.

CLEMSON BROS., INC. • Middletown, N. Y.

Makers of hand and power hack saw blades, frames, metal cutting band saw blades and the Clemson Lawn Machine.

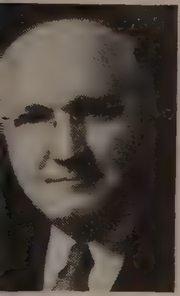
5208

ool Group Names McDonald President At Annual Meeting

tlantic City, N. J.

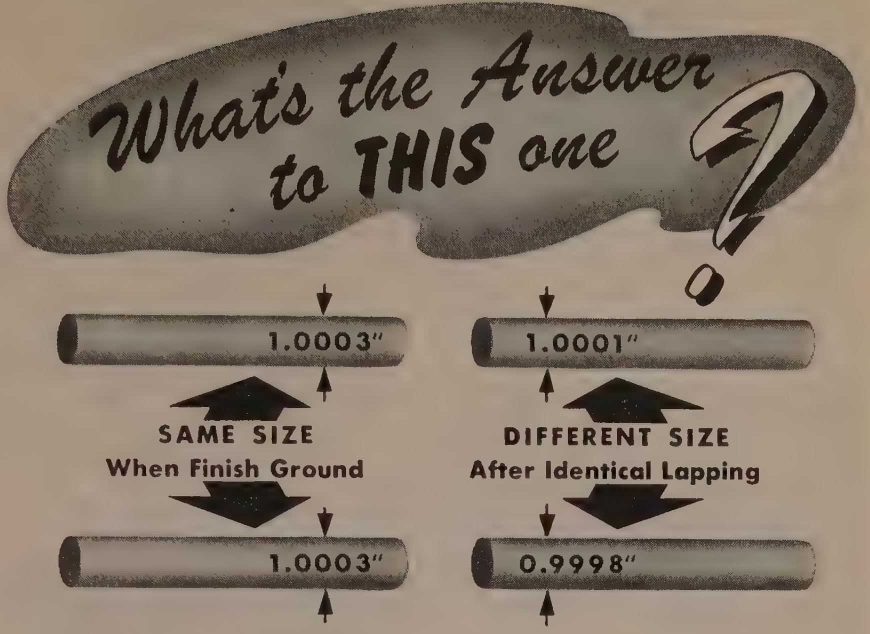
• • **At the 47th** annual meeting the National Machine Tool Builds' Assn. here Oct. 18 to 20, Lloyd . McDonald, vice-president of 'arner & Swasey Co., Cleveland, as elected president of the asciation. Succeeding Mr. Mconald as first vice-president is avid Ayr, president of Hendy Maiine Co., Torrington, Conn., and ichard E. LeBlond, president of . K. LeBlond Machine Tool Co., incinnati took office as second ce-president. Louis Polk, presient of the Sheffield Corp., Dayton, as reelected treasurer.

New directors elected for a year period include Ralph J. raut, president and general manager of Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., and Alfred V. Bodine, president and treasurer of the Bodine Corp., Bridgeport. In addition to the officers and new directors, the board includes erbert L. Tigges, executive vice-esident of Baker Bros., Inc., oledo; Milburn A. Hollengreen, esident, Landis Tool Co., Waynesro, Pa.; and Harold B. Smith, esident, Illinois Tool Works, Chigo. Mrs. Frida F. Selbert was elected secretary.


L. D. McDonald

In discussing his recent visit to dustrial plants in Europe, A. G. yant, retiring president of MTBA and president and vice-esident respectively of Bryant achinery & Engineering Co. and eereman Machine Tool Co., inditted that the lack of export orders r American machine tools is dictly the result of the failure of CA to urge foreign governments obtain these vitally needed protion units.

ECA, in being limited in auority by American foreign policy direct the use of American nds, cannot demand that foreign vernments take production equipnt as well as finished goods. nsequently, according to Mr.



The Profilometer
CAN TELL YOU!

HERE'S what happened—and what may be happening in *your own* production department:

The two parts shown above at left were both finish-ground to 1.0003". The upper part, however, had a surface roughness of 10 microinches, while the lower part—identical in appearance and "feel"—had a 20-microinch finish. Thus the latter part, with deeper "hills and valleys", had less metal to be removed per unit of thickness, and was undersize after lapping.

Obviously, it's entirely a matter of ***initial surface roughness.***

This typical production trouble is ***completely avoided***—and so are many others—***by specifying the surface roughness*** required after certain operations, then ***checking at the machine*** with the Profilometer to meet the specification. Where an attempt is made instead to control the surface by specifying the ***operation***—i.e., the machine, wheel or tool, speed, feed, etc.—experience shows that between identical set-ups on two or more machines, and from hour to hour on any ***one*** machine, roughness varies from 200 to 400%. These variations can prove to be very costly.

The direct-reading Profilometer eliminates all guesswork — tells you ***exactly*** the surface roughness you're getting, in definite microinch units. It can be used on practically any surface that can be produced by machining or grinding operations; and the above example is only ***one*** of its cost-saving applications. ***Write for informative new bulletin.***

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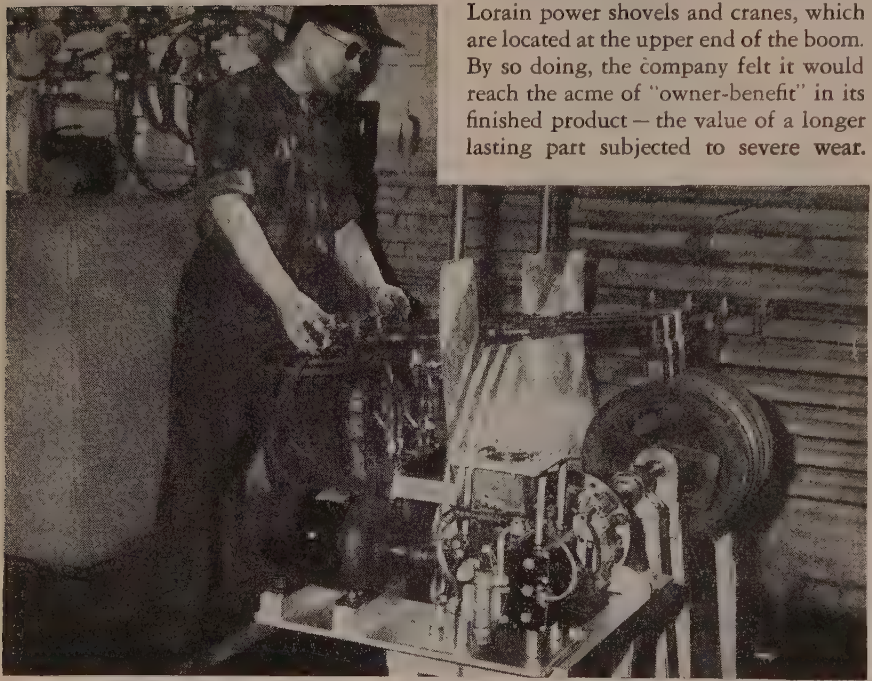
PRCo
PHYSICISTS RESEARCH COMPANY
ANN ARBOR • MICHIGAN

Product "customer-value" built up with flame hardening

THE THEW SHOVEL COMPANY, Lorain, Ohio, wanted to improve the wearability of the sheave throats on Lorain power shovels and cranes, which are located at the upper end of the boom. By so doing, the company felt it would reach the acme of "owner-benefit" in its finished product — the value of a longer lasting part subjected to severe wear.



A. B. Neiman, Airco Technical Sales Representative, recommended oxyacetylene flame hardening. With this modern process, hardening could be localized to the sheave throat, *without* affecting the balance of the sheave's ductility. This was highly important for finished machining. Using a set-up of three Airco No. 4383 torches, with hardening tips especially designed for this job, three sheaves are simultaneously hardened to a predetermined degree that insures maximum wear-resistant qualities.

Since flame hardening was introduced, the company still has gone further in its efforts to increase the customer-value of its products by expanding this modern, localized hardening process to include: gears, jaw clutches, and other parts requiring longer "in-service" life.

• • • •

TECHNICAL SALES SERVICE — ANOTHER AIRCO PLUS-VALUE FOR CUSTOMERS

To assure its customers of high efficiency in all applications of the oxyacetylene flame or electric arc, Air Reduction makes available the broad, practical experience of its nationwide Technical Sales Division personnel. The collective experience and knowledge of these specialists has helped thousands to a more effective use of Airco processes and products. Ask about this Airco "Plus-Value" service today. Write your nearest Airco office. (In Texas: Magnolia Airco Gas Products Company . . . On West Coast: Air Reduction Pacific Company)

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Offices in All Principal Cities

Headquarters for Oxygen, Acetylene and other Gases . . . Carbide . . . Gas Welding and Cutting Machines, Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories

Bryant and Mr. M. A. Hollengreen, who also made the trip to Europe, politicians of the 16 ECA participating nations have sought American made consumer items rather than production capacity. Actually, Mr. Hollengreen stated the aid program is developing into a glorified WPA of Europe.

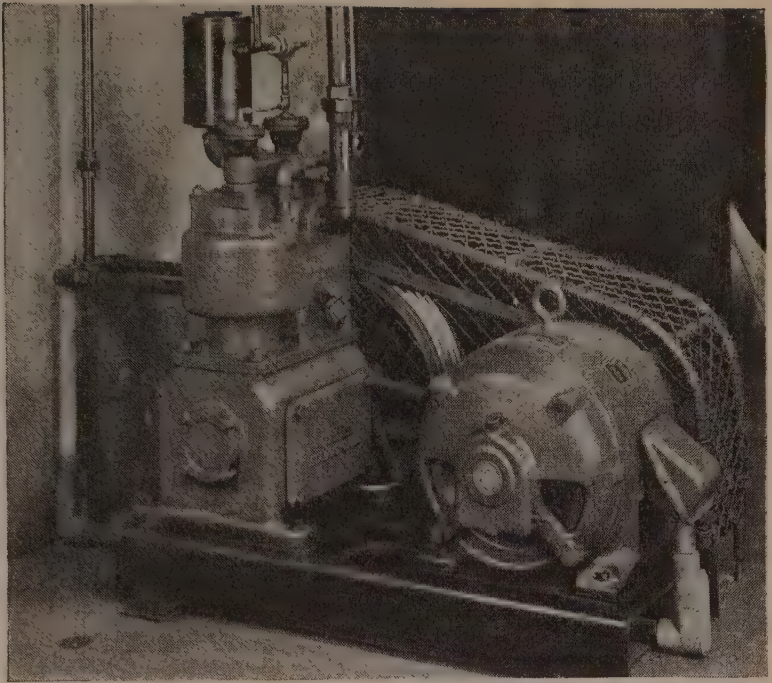
Further, the U. S. Dept. of Commerce will not grant licenses to ship equipment to nations in the Russian orbit, but Great Britain, where ECA aid and monetary aid are being given, has been working up trade agreements to ship machinery to Russia in exchange for wheat, lumber and similar commodities. Britain also has been loaning money to European nations on the condition that the money be spent in Great Britain for British made goods. This policy of American monetary aid without direction of the use of the money is rapidly eliminating any possibility of orders for machine tools to Europe.

If the ECA program is to avoid a continuance of relief rather than recovery, the policy of refusing to influence local governments in their programs for rehabilitation will have to be modified, Mr. Hollengreen stated. Also, some clarification or coordination of foreign policy is essential to adjust the paradox in which American manufacturers refrain from shipping goods to eastern Europe while the countries to whom aid is being given are regularly transacting business with those in the Russian orbit.

NMTBA is undertaking a program of establishing apprentice training standards. The committee in charge of this activity, headed by J. E. Goss, of Brown & Sharpe Mfg. Co., Providence, has undertaken to set up minimum standards of eligibility for member shops and to establish procedures of apprentice training. In discussing the program, Mr. Goss referred to a proposed code of the U. S. Dept. of Labor that plans to outlaw employment of workers 18 years old or less on certain types of machines except where the employee is an

David Ayr

Curtis Timken Bearing Air Compressor. Sizes from ¼ to 50 H. P., inclusive.



RELIABILITY That Pays Off in Low-Cost Performance

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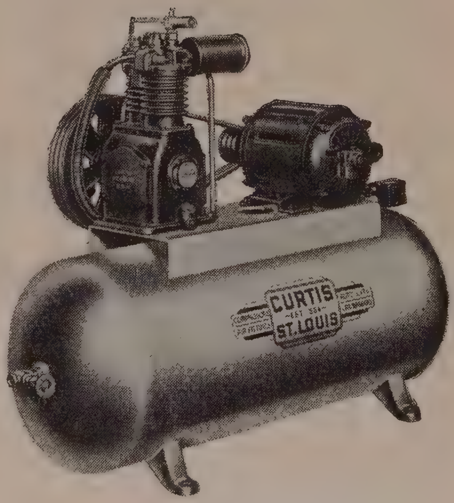
Every Curtis Air Compressor has been carefully engineered, made of the highest quality materials and precision built throughout.

Their dependable, economical performance is the result of such design advantages as:

- Timken Roller Bearings
- Self-Oiling—Positive Lubrication
- Carbon-Free Disc Valves
- Automatic Pressure Unloader
- Fully Enclosed Design
- Precision Construction

Specify CURTIS when you want a reliable, low-cost supply of air for *any* use. Capacities from ¼ to 50 H.P. (up to 300 CFM).



Curtis Timken Bearing Air Compressor with tank. Sizes from ¼ to 10 H.P., inclusive.

Write today for full information on Curtis Air Compressors, Air Hoists and Air Cylinders—or mail the coupon below.

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CURTIS

NEUMATIC MACHINERY DIVISION

of Curtis Manufacturing Company
948 Kienlen Avenue • • St. Louis 20, Missouri

4 Years of Precision Manufacturing

CURTIS PNEUMATIC MACHINERY DIVISION *of Curtis Manufacturing Company*
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Please send me Form C-7 on Curtis Air Hoists, Air Cylinders and Curtis Air Compressors.

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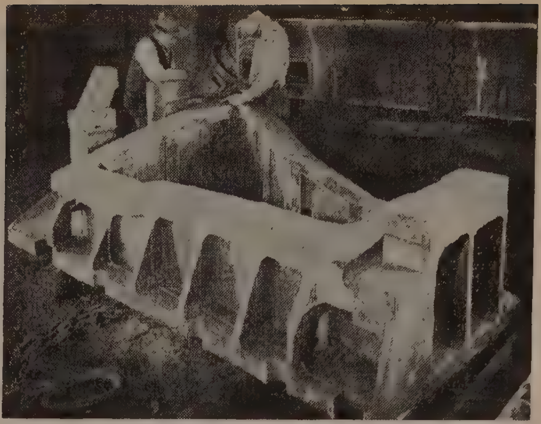
City.................... Zone.......... State....................

CHEAP CASTINGS CAN BE EXPENSIVE



Compared to the expense of machining this quarter panel, the cost of the casting is trivial. If a defect appeared after many hours of machine time had been spent on such a job, much more than the cost of the casting would be lost.

This doesn't mean you have to pay considerably more for sound, machinable castings. In fact, when you get that kind of castings from us, they probably won't cost you anything additional except the freight.

You'd be surprised to know how many customers at a distance are coming to us for gray iron, alloy, and *Strenes Metal* castings to save machining cost and grief. It's because they have learned by experience that it pays to get castings that don't show up blowholes, cold shuts, hard spots, cracks, and sponginess in the course of machining.

We do the same class of work on job castings as on *Strenes Metal* cast dies. That may sound like a broad statement, but we can prove it. If you want the proof, write or phone us.

THE ADVANCE FOUNDRY CO., DAYTON 3, OHIO

ADVANCE CASTINGS

STRENES METAL
ALLOY GRAY IRON
GRAY IRON

This Business of Making Holes

Probably the making of holes in one way or another accounts for more machining operations in the metal-working industries than any other type of stock removal. Mass production cannot be maintained unless fast, accurate equipment for the precision machining of holes is on the job constantly. That is why, since 1901, metal-working shops have been using MOLINE HOLE HOG cost-reducing equipment in production work.

For such operations as Boring, Milling, Straight Line Drilling, Universal Adjustable Spindle Drilling, Honing, Tapping, Reaming and Counterboring, or for ANY special problem, a Moline "Hole Hog" can do it for you faster at less cost.

MOLINE TOOL COMPANY
100 20th Street Moline, Illinois

apprentice under the definition of the Labor Dept. training course or an apprentice training course accepted by the Labor Dept. as equivalent to its own course and where not more than 25 pct of the employee's time is spent on machines in the "hazardous" category. Some equipment included in the hazardous list includes gear cutters, planers, multiple spindle drilling machines, turret lathes, and floor stand grinders for tool sharpening.

Should this proposed code be adopted, Mr. Goss stated, it might well mean the modification of all apprentice training courses to the point of ineffectiveness because of the fact that not more than 25 pct of a young apprentice's time can be spent in machine operation experience on a great many essential and fundamental pieces of equipment.

A book on apprentice training standards is being planned for NMTBA by the committee that will contain the basic fundamentals of a sound training program. Also, a NMTBA diploma method of recognition to students completing such a training program is being planned and will be brought before the association for approval at some future date.

Metallurgist Elected Head Of Utah Chapter of ASM

Salt Lake City

• • • **W. C. Dyer,** superintendent of the metallurgical chemical and inspection department, Geneva Steel Co., has been elected president of the newly formed Utah chapter, American Society for Metals, 77th chapter, to join the ASM national organization.

Don Rosenblatt, chief metallurgist, American Foundry & Machine Co., was chosen vice-chairman, and Dr. H. Edward Flanders, professor of metallurgy, University of Utah, was named secretary-treasurer.

The executive committee of the new chapter includes, in addition to the three executive officers, Dr. John R. Lewis, professor and head of metallurgical engineering, University of Utah; Hugh M. Thomson, assistant chief engineer, Utah Oil Refining Co.; A. N. Hopper, plant manager, Salt Lake City Works, Chicago Bridge & Iron Co.; Robert J. Prout, super-

ONLY PHILLIPS RECESSED HEAD SCREWS

UTOMOTIVE
ILWAY CARS
MARINE
PLASTICS
AIRCRAFT
FURNITURE
ELECTRICAL
APPLIANCES
...AND EVERY OTHER SCREW USING INDUSTRY

ARE ACCEPTED AS STANDARD IN ALL INDUSTRIES

One cross recessed head screw, PHILLIPS, is the accepted standard throughout industry. In the 13 years since its introduction, its many advantages have been recognized and applied in every field of manufacture.

For example, virtually the entire automobile industry has standardized on Phillips Screws—lists them in their Standards Book. Similarly, Phillips Screws are standard in most of the largest aircraft plants. Manufacturers of every type of screw-fastened assembly, large and small, use Phillips Screws exclusively.

Such universal acceptance by industry is the best possible evidence that Phillips Screws alone have *all* the qualifications essential to a *standard* cross recessed head screw. For unequalled mechanical advantages, for dependable uniformity, for unlimited supply potential, for universal acceptance, you can depend on PHILLIPS.

ET *ALL* THE ADVANTAGES OF ASSEMBLY WITH CROSS RECESSED HEAD SCREWS . . .

GET HILLIPS *Recessed Head* SCREWS

d Screws • Machine Screws • Self-tapping Screws • Stove Bolts

27 SOURCES

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Sterling Bolt Co.
Stronghold Screw Products, Inc.
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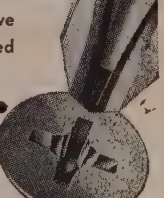
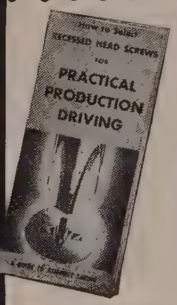
GET THIS NEW BOOKLET of facts that prove the top value, top economy of Phillips Recessed Head Screws. It's free . . . use the coupon.




HOW TO SELECT RECESSED HEAD SCREWS FOR
PRACTICAL PRODUCTION DRIVING

Phillips Screw Mfrs.,
c/o Horton-Noyes Co.
1800 Industrial Trust Bldg.
Providence, R. I.

Send me the new booklet—"How to Select Recessed Head Screws for Practical Production Driving".

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Get on with production. Do your snagging quicker, cleaner, *safer!* With Electro HIGH SPEED SNAGGING WHEELS *engineered to your job,* you'll see costs come down and volume of *better output* go up. These wheels work *on* anything *from* anything—swing frames, floor stands or portable machines. Full details illustrated in full color in our new Grinding Wheel Manual No. 645. Send for it *now.* It's *free.*

Service from Los Angeles or Buffalo

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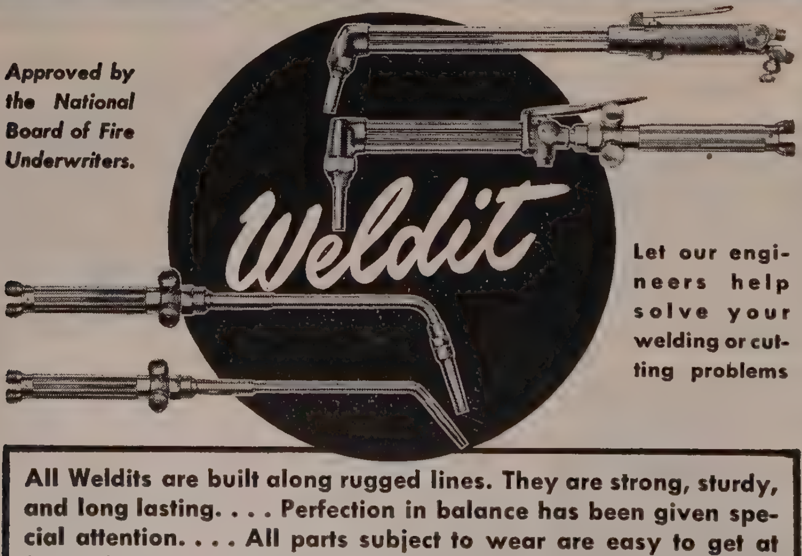
Approved by the National Board of Fire Underwriters.



Let our engineers help solve your welding or cutting problems

All Weldits are built along rugged lines. They are strong, sturdy, and long lasting. . . . Perfection in balance has been given special attention. . . . All parts subject to wear are easy to get at for replacement purposes. The result of 29 years of experience is built into every Weldit torch. . . . Thousands are in daily use in America's largest industrial plants—*They Must Be Good.*

Some distributor territory still available.

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visor, metallurgical laborator
Geneva Steel Co.; A. P. Hoelsche
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group was Dr. Walter Mathesiu
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Engine Possesses Less Weight Per hp Despite Total Weight Increas

Schenectady •

• • • **The Wasp Major-VDT,**
new piston jet propulsion pow
plant for aircraft that consists
a 28-cylinder Pratt & Whitney e
gine and a 2-stage General Electr
variable discharge turbosupe
charger, has been perfected, accor
ing to U. S. Air Force personne

In addition to increasing the ou
put of the 3500 hp Wasp Majo
already the world's most powerf
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VDT has performance characteri
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recent times. Its fuel consumpti
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Unlike the conventional jet e
gine with its fixed-area dischar
orifice, the area of the VDT di
charge nozzle is varied automatica
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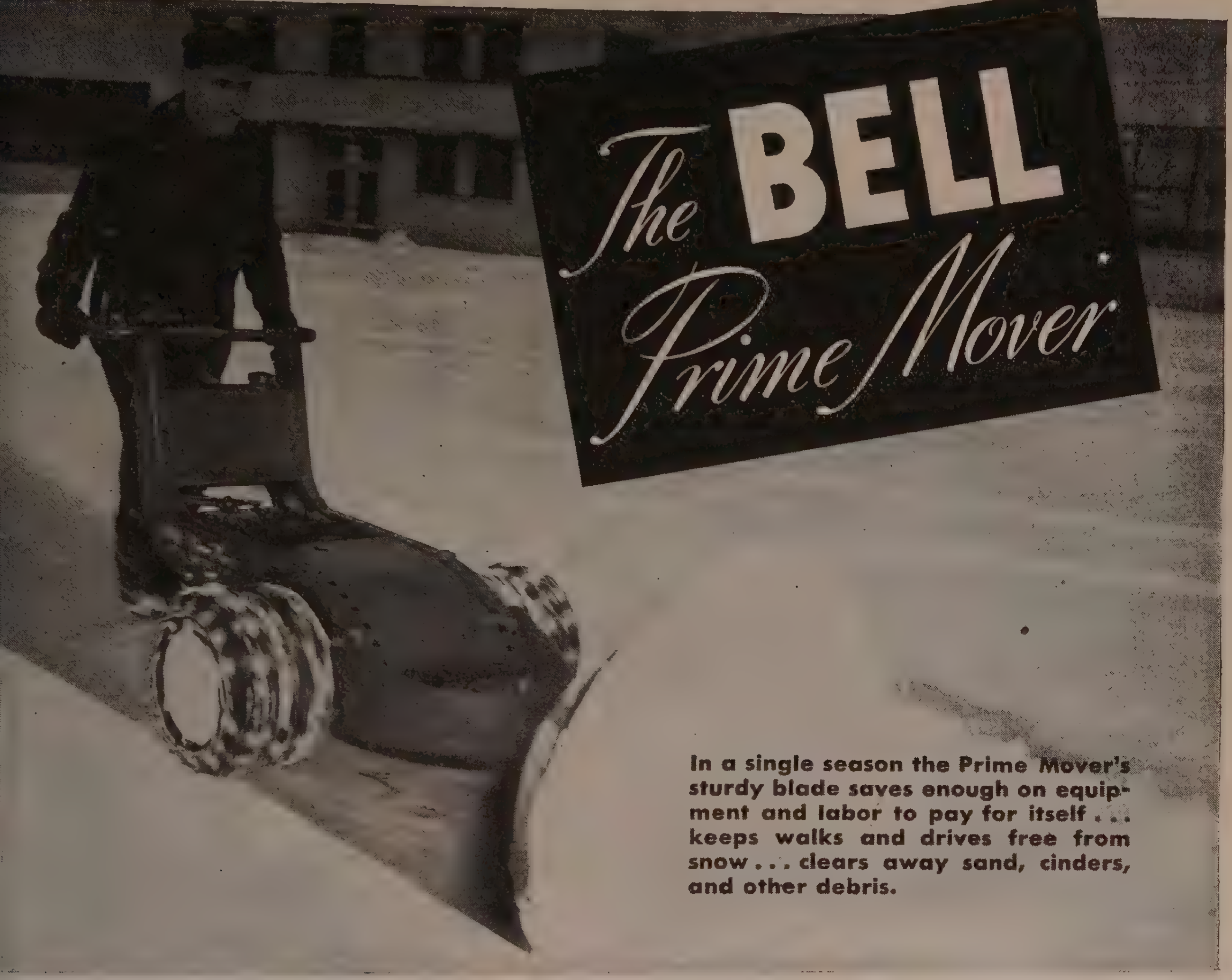
cient discharge speed over a wi
range of operating conditions.

The entire VDT power plant us
main elements and principles wi
which engineers have had a weal
of experience. Emphasis has bee
placed on making the entire pow
plant as simple as possible. Th
factor contributed to the satisfa
tory completion of an official 15
hour qualification test in Augus

While the external appearance
the Wasp Major is substantially t
same as that of earlier model
many engine components have bee
made heavier and stronger to ha
dle the increased power availab
at the propeller shaft on the VD
Thus, despite the elimination of t
engine's internal supercharger a
its driving mechanism, this add
tional metal, together with the fu
injection system, has increased t
weight of the engine. The increa
in horsepower, however, has resul
ed in a decrease in the engi
weight per horsepower.

This feature *alone* can pay for



In a single season the Prime Mover's sturdy blade saves enough on equipment and labor to pay for itself . . . keeps walks and drives free from snow . . . clears away sand, cinders, and other debris.

ENTS & T.M. REG. PENDING. COPYRIGHT, 1948

FEATURES:

- takes half-ton loads up 20% grades.
- bucket holds 10 cubic feet...18 with sideboards.
- gear driven . . . no belts or chains.
- clutch, engine, transmission all run in oil.
- fully enclosed engine protected against dirt and moisture.
- half-ton platform body available; also 50-inch "baby bulldozer" blade.
- switch from bucket to platform without tools...in less than a minute.
- turns in its own length (63½"); width only 31½".
- 3-gallon tankful of fuel gives 8 hours continuous service.

A PRODUCT OF
BELL *Aircraft*
CORPORATION

● You don't need costly tractors and expensive labor gangs to clear away snow this winter. A Bell Prime Mover, with its 50-inch blade, can do the job for far less cost. And that isn't all . . .

When snow plowing is done, the Bell Prime Mover can be readied for other jobs in just a few minutes. With its big bucket, it becomes a *GIANT wheelbarrow.* With its steel platform, it becomes a *half-ton utility truck.* It pays *extra* dividends on scores of year-'round applications.

A nationwide network of distributors and service depots is available for demonstration of the Bell Prime Mover on such jobs as pouring concrete; moving packaged goods and supplies in warehouses and loading platforms; plowing snow or sand . . . doing any light scraping or grading.

For detailed information and the name of a nearby distributor, please mail the coupon . . . today.

BOOTH NO. 129
3rd ★ ★ ★ ★
NATIONAL
MATERIALS
HANDLING
EXPOSITION
PHILADELPHIA
CONVENTION HALL
JAN 10-14, 1949

BELL AIRCRAFT CORPORATION
Post Office Box 1IA-11, Buffalo 5, N. Y.

Please send me complete data on the Bell Prime Mover . . . and the name of nearest distributor.

Name ....
Company ....
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City, Zone, and State ....

FOR-RENT
Experience

in making of your screw machine parts and complete products

- Micrometers
- Automobiles
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- Aircraft
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- Blowers
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- Fishing reels
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- Counting devices
- Roller bearings
- HP.motors
- Casters
- Electrical controls
- Pressure gauges
- Valves
- Bicycles
- Cranes
- Rock crushers
- Cement mixers
- Turbines
- Generators
- Lawn mowers
- Door locks
- Door hinges
- Power tools
- Thermostats
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U.S. AUTOMATIC

Our men have accumulated many valuable years of experience. Enlist their experience the next time you need screw machine parts. Send us your prints today

BAR CAPACITY
3/64" to 5 1/2"dia.

ALL SECONDARY OPERATIONS

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CORPORATION
Amherst, Ohio

Dutch Company Expands Pig Capacity; Exports Large Part of Output

Ijmuiden, Netherlands

• • • **Somewhere between** 33 and 50 million florins are being spent in increasing pig iron production of the Ijmuiden Iron & Steel Co. from 400,000 tons to 700,000 tons annually and the ingot capacity from 200,000 tons to 750,000 tons a year.

The steel company here has expanded continuously since after the first world war until it now produces a substantial tonnage of the country's total domestic requirements which are near 1 million tons annually.

Reconstruction of plants damaged during the war is now almost complete. Pig iron output is at about 323,000 tons annually or about 50 pct more than a year ago.

Low domestic prices as compared with profitable export returns has made the company foster foreign markets. As a result approximately three-fifths of the country's total pig iron output is exported. Prices obtained, particularly on the American market, have been the biggest factor in arriving at this marketing policy.

Officers Reelected By Southern Scrap Group

Washington

• • • **Officers** of the Southern Chapter of the Institute of Scrap Iron & Steel, Inc., were reelected at a meeting of the chapter held at Asheville, N. C., recently.

Nathan S. Addlestone, Addlestone & Co., Sumter, S. C., was reelected president of the chapter and thus continues to represent the chapter on the national board of directors of the institute.

Other officers reelected include: First vice-president, Leo J. Kelleher, Southern Converting Co., Greensboro, N. C.; second vice-president, Morris Brenner, Brenner Iron & Metal Co., Winston-Salem, N. C.; third vice-president, Sol Levin, Levin Bros., Burlington, N. C.; secretary-treasurer, Hy Helbein, Southern Metals Co., Charlotte, N. C.

The following members of the executive committee were reelected for the coming year: Sol Aberman, Sol's Junk & Metal Co., Rock Hill, S. C.; Seymour Brown, Golds-

Greater Tonnage Per Edge of Blade

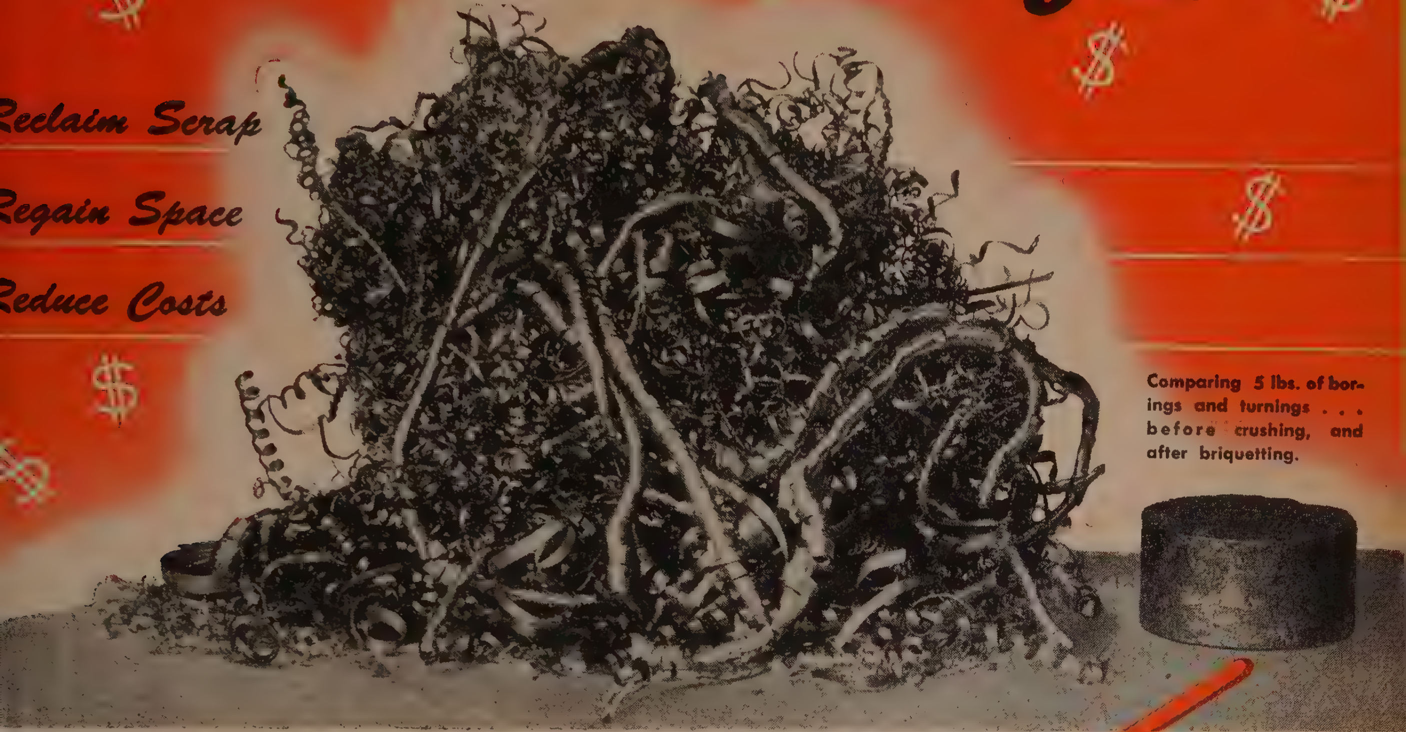
AMERICAN
SHEAR KNIFE CO
HOMESTEAD · PENNSYLVANIA

RIQUETTING FOR *Profit!*

eclaim Scrap

egain Space

educe Costs



Comparing 5 lbs. of borings and turnings . . . before crushing, and after briquetting.

Your Reclaimed Scrap Will Pay for a Milwaukee Hydraulic Briquetting Press

Yes — We mean just that! *You pay for a Press out of profits!* No substantial cash outlay required. Under our liberal purchasing arrangement, you can install a Milwaukee Hydraulic Briquetting Press and then let the profits you earn pay for the machine while it's working.

A Press means substantial MONEY SAVINGS to you. The differential between the cost of pig or No. 1 scrap, f.o.b. your plant, and your selling price of borings, f.o.b. your plant, less $2.00 per ton (which is the cost of briquetting, including power, labor, maintenance, etc.) is the savings possible in metal cost. Actually, in many cases, a Milwaukee Press pays for itself in less than 10 months.

And you profit in other ways! Through better metal control, a Press enables you to improve the quality of your scrap. Compact briquettes replace bulky borings and turnings . . . conserve valuable floor space . . . add to your yard capacity.

Investigate briquetting today! Without any obligation on your part, a MILWAUKEE engineer will gladly show you how to reclaim scrap profitably.

ILWAUKEE HYDRAULIC IQUETTING PRESS . . .

ilable in five sizes with capacities ranging
¾ ton to 4 tons per hour, fully auto-
ic. Scrap is compressed into briquettes
2¾" to 5" in diameter at the rate of
briquettes per hour. Briquettes, whether
l, cast iron or non-ferrous metal, are uni-
in density and size.

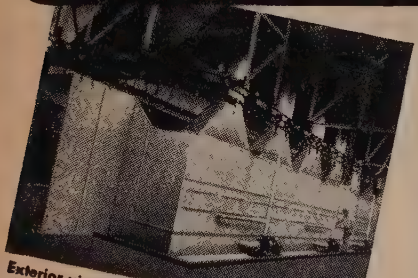
ILWAUKEE *Foundry Equipment Co.*

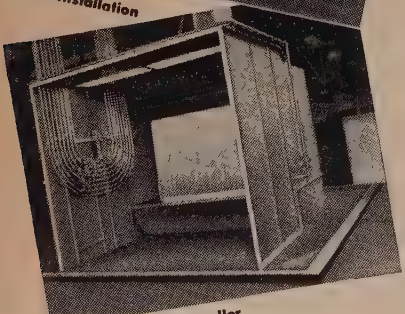
Castings are Permanent

38 W. PIERCE STREET, MILWAUKEE 4, WISCONSIN, U.S.A.

Schmieg
CENTRI-MERGE
IN ACTION

Carries Away Overspray . . .
IN A WHIRLING TORNADO OF WATER


Exterior view of above installation


Compact unit for smaller spraying jobs

Consult Schmieg engineers regarding your problems of dust and fume control.

PAINT-LADEN AIR IS "TORNADO" CLEANED. Operators, working in a Schmieg Centri-Merge Spray Booth, are adequately protected from fire and fumes. Overspray is carried on an air stream *horizontally* away from work into a curtain of water, pressure-fed through slots extending continuously full width of booth, that descends down the flood sheet. The mixture of fume and paint-laden air and water is then whirled under the flood sheet and hurled with tremendous impact against the impingement wall at back of booth. Down this impingement wall flows an additional sheet of water that floods the foreign matter, pounded out in the process, into the sludge tank below. Only CLEAN AIR passes through exhaust fan. Thus the danger of fire is suppressed both in front and behind the flood sheet. Because the ratio of water and air is far greater in Centri-Merge, paint and other gummy substances do not pile up on the hard-to-get-at walls of the chamber behind the flood sheet; therefore, cost of repeated cleanings is eliminated.

THE *best* AIR PURGE *is* CENTRI-MERGE

Schmieg INDUSTRIES INC.
Engineers & Manufacturers
296 PIQUETTE AVENUE • DETROIT 2, MICHIGAN

boro Iron & Metal Co., Goldsboro, N. C.; Abe Cohen, Lynchburg Iron & Metal Co., Lynchburg, Va.; Sam Golden, Virginia Scrap Iron & Metal Co., Roanoke, Va.; Sol Katz, Katz Bros. & Co., Inc., Columbia, S. C.; W. Alec Rawls, Alec Rawls Wrecking Co., Rocky Mount, N. C.; Jos. A. Sternberg, Consolidated Hide & Metal Co., Asheville, N. C.

The following new members of the executive committee were elected: Morris Sklut, B. Swartz & Co., Winston-Salem, N. C.; Sam Lyons, Sam Lyons & Co., Greensboro, N. C.; Jack Witten, Witten Iron & Metal Co., Gastonia, N. C.; Ray Retchin, Southern Junk Co., Wilmington, N. C.; and David Sheer, Piedmont Steel & Metal Corp., Greenville, S. C.

Forced Licensing Seen As Threat to American Technological Advance

Chicago

• • • **Forced licensing** of patents would encourage inventors and manufacturers to keep their new ideas secret and thereby handicap technological advancement, according to William J. Kelly, president of the Machinery and Allied Products Institute.

Technology thrives best where there is unhampered flow of new knowledge between all inventors and research scientists as provided by the United States patent system, Mr. Kelly said. Inventors would be reluctant to patent their new creations if they were threatened by compulsion to share them with others. Compulsory patent licensing would be a step backward toward the conditions which prevailed in the days of trade secrets handed down from father to son.

Mr. Kelly said that agitation for compulsory licensing is a perennial threat to the patent system, and the issues involved are of vital interest to producers of capital goods who have a special responsibility for maintenance of a national environment favorable to technological progress.

In the fourth of a series of bulletins on patents and the capital goods industries, the Institute contrasted conditions in the United States with those of for

CLUTCH HEAD *Is Obtainable In All Sizes and Types of Screws...* STANDARD OR SPECIAL

Regardless of the sizes or types of screws you are using now... *or plan to use*... it will pay you to weigh the profit and safety advantages of replacing them with CLUTCH HEADS.

These advantages are definite. They are vouched for by CLUTCH HEAD users operating assembly lines in virtually every branch of industry, light and heavy . . . from the world's largest automotive and refrigeration plants to delicate radio and electrical assemblies.

These users credit change-over to CLUTCH HEAD with:

Production increases ranging from 15% to 50%.

Freedom from burred or chewed-up heads due to high visibility of the recess, dead-center bit entry, and automatic straight driving.

Elimination of the skid hazard (with its consequent danger of injury to manpower and damage to fine surfaces) resulting from CLUTCH HEAD'S exclusive feature of all-square non-tapered driving engagement.

Checking out a fatigue factor because this all-square contact eliminates the need for tiring end pressure to combat "ride-out" as set up by tapered driving.

These exclusive features have established CLUTCH HEAD *as America's Most Modern Screw and their value will be immediately apparent on examination.*

5. **The hurdling of "fumble spots"** . . . thanks to the Lock-On which unites screw and bit as a unit for one-handed reaching and an easy drive-home from any angle.

6. **Fractional tool maintenance cost** . . . resulting from the rugged structure of the Type "A" Bit which drives up to 214,000 screws non-stop, and which may be reconditioned on-the-spot in 60 seconds.

7. **The curing of field service "headaches"** because the CLUTCH HEAD recess is basically designed for operation with a common screwdriver.

CLUTCH HEAD SCREWS

For preliminary investigation, we suggest you send for screw assortment, sample of the Type "A" Bit, and illustrated Brochure.

UNITED SCREW AND BOLT CORPORATION

CLEVELAND 2 CHICAGO 8 NEW YORK 7

Tumbling barrels completely fabricated by Ampco Metal, Inc. of Ampco-8 sheet, welded with Ampco-Trode corrosion-resistant arc welding electrodes. Studs are welded to base of barrels for mounting on tumbling turntable.

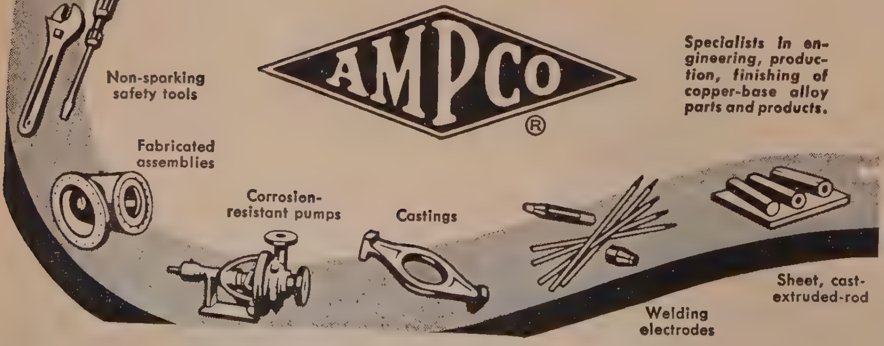
Ampco Metal
makes tumbler-barrel costs tumble

Using Ampco rolled sheet cuts maintenance and replacements

Tumbling barrels are used to clean rivets, screws, nuts, and a variety of similar small parts. Formerly, they wore out quickly—because of the cleaning solution's corrosive action, and the abrasive effect of swirling metal parts. Replacement costs were high, until the manufacturers switched to tumbling barrels fabricated with Ampco-8 sheet. This durable, corrosion-resistant alloy solved their expensive replacement problem in jig-time. That is just one more case of the money-saving value of Ampco Metal's unique physical properties. Hundreds of companies use durable Ampco Metal and Ampcoloys in their own products as selling features—and in their production equipment as insurance against heavy maintenance and replacement costs on parts subject to wear.

Call in your nearby Ampco engineer for cost-cutting suggestions. Write for complete information on Ampco castings, extrusions, forgings, sheet, and fabricating service.

Ampco Metal, Inc.
Department IA-11 • Milwaukee 4, Wisconsin
Field offices in principal cities



Specialists in engineering, production, finishing of copper-base alloy parts and products.

eign countries which have compu sory licensing laws.

Other countries feel a need fo compulsory licensing laws becaus a large proportion of their patent are held by Americans or othe foreigners.

In short, compulsory licensin would not accomplish the purpos claimed for it and it would largel destroy the effectiveness of th patent system as a stimulant t technological progress. It is scheme for sharing inventions, a repugnant to the private propert concept as "share the wealth."

Imports of British Autos During Past Year Gain Sharpl

Washington

• • • **Imports** of automobiles ar increasing in the postwar perioc especially during the curren year, according to figures com piled by the Bureau of the Censu

Statistics show that there wer 16,046 new automobiles (complet or chassis), other than trucks an buses, imported for consumptio into the United States during th first 8 months of 1948.

Imports during the calenda year 1947 amounted to 1453 auto mobiles, while the total numbe imported during the calendar yea 1939 was only 298. 15,321 of th 16,046 automobiles imported dur ing the first 8 months of 194 were produced in the Unite Kingdom.

Receives Gold Medal Awar

Atlantic City, N. J.

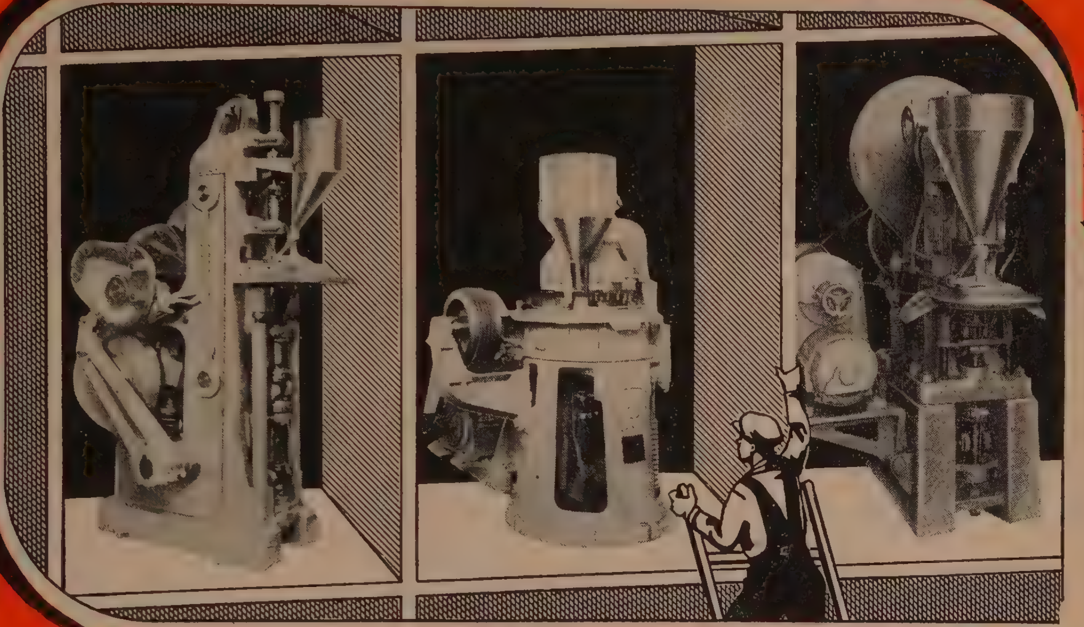
• • • **Arthur E. Hageboeck** be came the first recipient of th gold medal award of Gray Iro Founders' Society for "outstand ing contributions to the genera welfare of the industry," at th society's annual meeting here.

Mr. Hageboeck, executive vic president, Frank Foundries, Inc Moline, Ill., served as presiden of the society in 1931-32; as vic president in 1930, as directo 1930-32, and chairman of the cos committee since 1945.

In presenting the award, Gra Iron Founders' Society also cite Mr. Hageboeck's tireless promo tion of sound cost accounting pro cedures, organizational accom plishment in establishing foundr cost groups throughout the coun try.

ASK STOKES

You don't buy Powder Metal Presses "OFF THE SHELF"



A press too large or too small for your long-term needs will show in the cost of every unit it produces. For advice on how you can use powder metal at a profit in *your* business; for help in press selection, punch and die design, powder formulas, or related problems . . . consult Stokes.

Here at Stokes you draw on the accumulated experience of more than half a century in press design and operation. Your problem goes through a semi-plant-scale testing laboratory guided by the engineering skill which has pioneered in this field since 1920. Recommendation is then made of the right press from the *complete* line of Stokes specially designed presses for powder metal work.

Stokes also makes Molding Presses, Industrial Tablet Machines, Vacuum Pumps and Gages, High Vacuum Processing Equipment, Tube Fillers, Pharmaceutical Equipment, Water Stills, Special Machinery.

For the right powder metal press for your job, consult with F. J. Stokes Machine Co., 5904 Tabor Road, Philadelphia 20, Pa.

FJS

STOKES KNOWS HOW

GAS TO OIL
OIL TO GAS
IN SECONDS !-!

OIL STANDBY EQUIPMENT

INSURES AGAINST PLANT SHUTDOWNS DUE TO WINTER FUEL SHORTAGES!

Hurry! **Present demand dictates a limit on deliveries for installation this fall.**

● During the winter season of 1947, 'Surface' installed oil standby equipment in a total of 159 furnaces — 1100 burners, of 'Surface' design, which operated almost daily in one instance for a 58-day period. 61 users enthusiastically recommend this equipment to insure constant plant operation—maintain production—build employee relations and create customer goodwill.

ACT QUICKLY!—the demand for this new oil standby equipment is rapidly absorbing available production facilities.

EASY TO INSTALL—*change over from one fuel to the other is a matter of seconds for most installations.*

SURFACE COMBUSTION CORPORATION
TOLEDO 1, OHIO

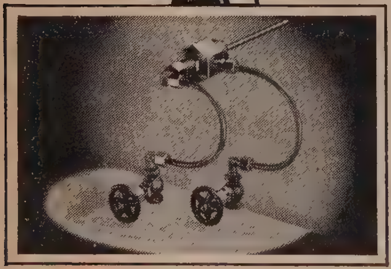
'Surface' INDUSTRIAL BURNERS AND FURNACES

ATTACH THIS COUPON TO YOUR LETTERHEAD AND MAIL

☐ RUSH 8-page bulletin giving specifications and engineering details.
☐ Glad to have your engineer determine our requirements.

NAME ....

TITLE ....



Says Taft-Hartley Law Helps Labor Relations

Asheville, N. C.

• • • **Before the** semi-annual meeting of the Concrete Reinforcing Steel Institute held here recently, H. D. Foreman, managing director of the Associated General Contractors of America, spoke on cooperation in the construction industry. Mr. Foreman told the group that since the passage of the Taft-Hartley law, labor has been willing to work out the problems with the contractors directly and generally labor conditions have been vastly improved.

The Taft-Hartley law, the speaker said, opened up the possibility of getting along with labor through the clause which permitted the solving of jurisdictional disputes. It appears that labor is willing to negotiate and settle their matters with contractors in preference to having the issue tried before a tribunal of men not too familiar with the industry.

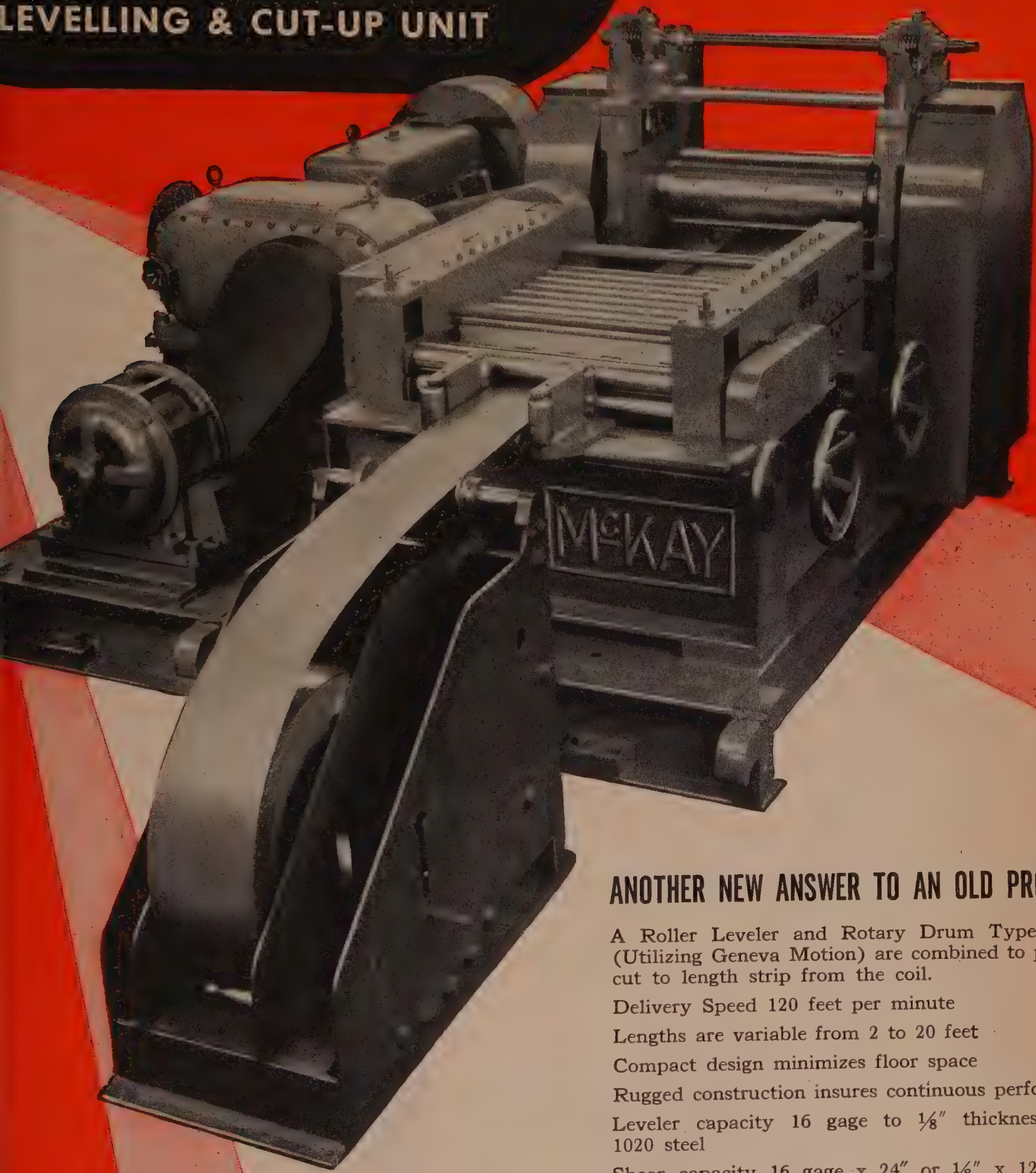
The speaker spent some time on costs. He charged that irresponsible comments by government agencies on the values received for the money spent in the construction industry are not true. He pointed out that the commodity index has risen from 100 to 160 since 1940 while the comparable figure in construction is from 100 to 140.

Mr. Foreman pointed out to the members of the institute that the contractors are at the end of the line of any given job and therefore must compute the total gross charges. He said that 30 to 60 pct of the ultimate costs of most construction jobs are materials. Mr. Foreman stated that contractors as such are unable to secure escalator clauses on public contracts. They must give lump sum prices. The contractors are having a difficult time trying to make up fair and adequate prices on such jobs because many of the materials going into the job are sold to them on an escalator basis.

"Why can't the Concrete Reinforcing Steel Institute members give firm prices without escalator clauses?" the speaker asked. The American General Contractors are afraid that as far as government jobs are concerned, the government agencies will come into the picture and do their own building

McKAY

LEVELLING & CUT-UP UNIT



ANOTHER NEW ANSWER TO AN OLD PROBLEM

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Delivery Speed 120 feet per minute

Lengths are variable from 2 to 20 feet

Compact design minimizes floor space

Rugged construction insures continuous performance

Leveler capacity 16 gage to ⅛″ thickness—SAE 1020 steel

Shear capacity 16 gage x 24″ or ⅛″ x 12″—SAE 1020 steel

Engineered for low cost high speed production.

The McKAY MACHINE Compan

ENGINEERS AND MANUFACTURERS OF SHEET, TIN, AND STRIP MILL EQUIPMEN

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The WEAN ENGINEERING CO., Inc. • WARREN, OHIO

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500 pounds to 125 tons of Cardox CO_2, stored in one centrally located Storage Unit. Automatic protection for single or multiple hazards.

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Tons of CO_2 on wheels. May be used with fixed standpipe systems.

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Mobile plant protection by means of 750 pounds of Cardox CO_2.

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Especially designed for outdoor use. Carries both Cardox CO_2 and foam.

AIRPORT FIRE TRUCK
Stops vicious airport crash fires in seconds. World's most effective airport fire protection.

ENGINEERED FOR
FAST, NON-DAMAGING
Extinguishment
OF TOUGH FIRES

How long since you've asked yourself these two $64 questions: *How hard would one bad fire hit our plant and production?* and *Where is it most likely to strike?* Hundreds of industries who have faced up squarely to these questions have found that the only *safe* answer is *complete* protection for *key* hazards—and that that protection can best be supplied by Cardox and *low-pressure* carbon dioxide.

For Cardox protects *three* ways. (1) By its amazingly quick extinguishment, Cardox CO_2 eliminates or reduces fire damage. (2) It causes *no* extinguishment damage whatsoever. (3) It can be applied with equal facility in pounds or tons. When it's Cardox you *know* there's enough of the extinguishing medium to do the job, for that is basic to the Cardox method, engineering and recommendations.

Get the facts on what Cardox protection means for *your* particular hazards. Write today for FREE survey and counsel or Bulletin No. 2118.

CARDOX OFFERS ALL THREE

EXTINGUISHMENT
Cardox engineered applications give carbon dioxide enhanced effectiveness for faster, surer extinguishment of large or small fires, indoors or out.

PREVENTION
Cardox Atmosphere Inerting Systems provide low-cost inert gas for continuous fire and explosion protection.

DETECTION
Cardox Detection Systems, actuated by heat, smoke or flame, operate as a warning device or to actuate fire extinguishing systems.

*Available in Many Parts of the Country

CARDOX
CO_2 FIRE EXTINGUISHING SYSTEMS

CARDOX CORPORATION • 307 N. Michigan Avenue, Chicago 1, Illinois
District Offices: New York • Philadelphia • Pittsburgh • Cleveland • Detroit • St. Louis • Los Angeles
San Diego • San Francisco

if they can't obtain firm prices that are fair from the American contractor.

Mr. Foreman told the group voluntary allocations, reminiscent of NRA days, are causing the contractors considerable worry. The AGC has talked to the Dept. of Commerce about construction tonnages and were told that they were not proper parties and were not eligible to receive allocated steel tonnages. Some attention is being given to this problem, but the speaker reported that in his belief they would not be successful in receiving allocated tonnages because of the present firm tenor of the Dept. of Commerce against adding any new programs.

Modern Manufacturing Technique is Essential For Domestic Economy

Pittsburgh

• • • All vehicles should be redesigned on the basis of present day realities, according to Delmar G. Roos, vice-president of Willys-Overland Motors.

Unless automotive manufacturers alter their present viewpoint to meet the situation, he said, one of three forces will stop the trend. One of these forces would be taxation.

A second is the prospect that prices of steel and rubber, oil and gasoline will sooner or later paralyze the industry which is the nation's No. 1 purchaser and its greatest employer.

The third is the prospect that the cost of buying, operating and maintaining automobiles will reduce purchases to a point where the industry will shrink and many cars will be forced off the road, he declared.

Makers of automobiles, he added, with present-day techniques and known factors of design, can save materials and fuels and increase mileage per gallon from the accepted 15 gallons, which was the war time federal estimate, to 30 gallons, and do even better than that. His own company has met the situation from the start of postwar manufacturing in 1945 with lighter vehicles constructed for economy and low cost of operations.

"The dislocation of the domestic economy which occurred with

THE STORY BEHIND
CCURACY TO SPARE

'he many products to which cold-wn seamless tubing is now being lied require accuracy from any num- of standpoints. For pointer tub- the instrument manufacturer wants cise strength-to-weight ratio for bal-e and to withstand striking a stop . For Bourdon gauges, shape, size, metallurgical properties must be ırate for reliable indication of the htest pressure variations. The me-nical pencil manufacturer requires ensional accuracy for perfect fit of ponent parts. The electronic user ‹s concentricity for coaxial conduc-. However the tubing is used, all ıufacturers usually stress one char-eristic that must be carefully ob-ved in tubing production.

ccuracy is no accident. Its fulfill-t requires a production system in ch supervisors fully understand the to which each length of tubing will out. Production men, in turn, must nstructed properly and must possess ialized skills to carry out such high dards.

ooling, for example, can be only the No makeshift practices can be rated. Moreover, these tools must hecked frequently to make certain are in perfect condition with dupli-s ready if needed.

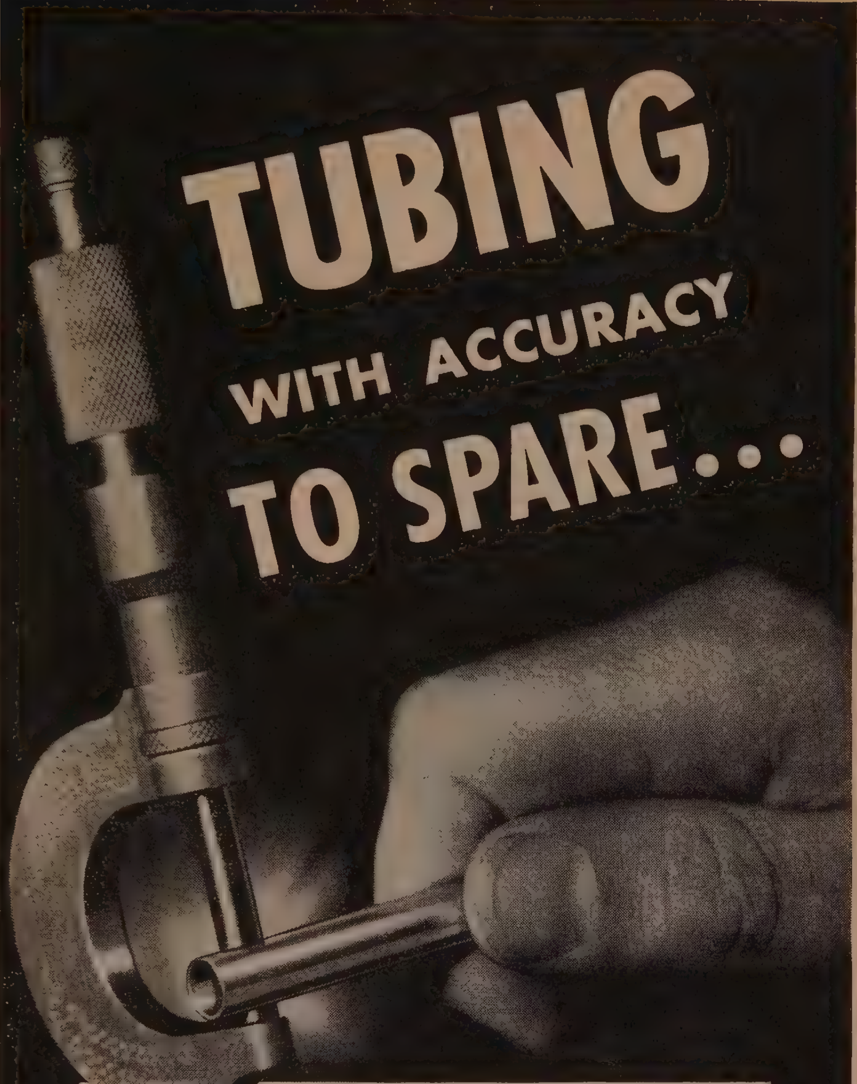
he metallurgist's position in main-ing accuracy is highly important. must properly specify heat and load es for each anneal and take respon-ity for conformance of the finished erial with the customer's order.

ne chemist is also important in ision Tubing manufacture. His ribution of knowledge of lubrication cleaning methods are vital to tool . Top accuracy is impossible if change from the beginning to the of a production run. If mineral lubricants are used, sulphur con-is vital. With water soluble lubri-s, staining is a major problem. In r case, proper cleansing methods be devised.

nally, the inspector must be skilled e use of instruments. He must at his disposal all specifications e able to apply his instruments so only tubing which meets specifica- is released.

ıus, it can be seen that Precision's ıction requires a combination of skills. Each individual directly ved must possess years of know-and the firm desire to do a good Accuracy to Spare must result team work to spare in any in-y.

(Advertisement)



TUBING WITH ACCURACY TO SPARE...

PRECISION MADE FOR PRECISION PRODUCTS

When you specify seamless tubing—whether it's for instrument pointers, Bourdon gauges, metal-shielded wire, mechanical pencils, or any one of a number of products—here, at Precision, accuracy is our watch-word. Inside diameter, outside diameter, wall thickness—all dimensions are held to close tolerances, often exceeding those specified. In this way the over-all accuracy you want in your finished products is consistently carried out in our part of their manufacture.

Sizes of Precision Tubing cover a range of outside diameters from 0.500″ to 0.010″, with wall thicknesses down to 0.0015″. Available in aluminum alloys, brass, copper, nickel, monel, or other non-ferrous alloys—each length of Precision Tubing can be preformed to the shape you specify . . . ready on good delivery.

When Precision Counts—Count on Precision

PRECISION TUBE CO.

Factory: 3824-26-28 TERRACE ST., PHILADELPHIA, PA.

We pioneered yesterday
to help your budget today!

ENGINEERING
B-W
PRODUCTION

Twenty years ago when Ingersoll perfected IngAclad, a few brave souls saw its economical advantages. They proved their confidence by ordering test installations. These went chiefly into the various process industries.

Today, IngAclad Stainless Clad Steel is accepted everywhere with the same confidence Ingersoll solid stainless steel is accepted.

Where budgets are tight—and where stainless service is required only for the contact side—specify IngAclad Stainless-Clad Steel. Available in sheets 18 to 8 gauge, and in plates 3/16" to 1/4" inclusive.

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Greatly enlarged photograph of IngAclad machine cutting

INGACLAD
STAINLESS-CLAD STEEL

the first world war and was r
peated in magnitude and intensi
with the second war, could easi
prostrate the country within
short time, in the event of a thi
emergency," he declared.

"The necessity of modern a
warfare and the fearful pace
which the required air strengt
would consume our raw materia
would quickly pose the problem
keeping the nation on wheels," h
added.

"It is already dangerously lat
The time has long since past whe
the industry should have forgo
ten luxury and devoted itself
the conservation of those product
on which might easily depend th
national safety."

Chooses Site for New Atomic Power Work

Schenectady

• • • **The U. S. Atomic** Energ
Commission has announced that
would acquire 4500 acres of land i
Saratoga County, N. Y., as the l
cation of an experimental atomi
power plant for studies of the ge
eration of electric power fro
nuclear energy.

The plant will be part of th
facilities of the Knolls Atomi
Power Laboratory, operated for th
commission by the General Electri
Co. at Schenectady. The Army E
gineers will serve as agents of th
commission in the acquisition o
the new site.

Dr. C. G. Suits, vice-presiden
and director of research for Ge
eral Electric, said that the nuclea
reactor, the heart of an atomi
power plant, would be quite diffe
ent from the production reactors a
the commission's Hanford Work
in the state of Washington. Th
Hanford plant, now operated b
General Electric, was built durin
the war for the sole purpose o
making plutonium for military pu
poses and generates no usefu
power.

The new Knolls reactor is on
of two now being designed espe
ally for the study of high tempera
ture operation and the productio
of power. A different type of re
actor but for a similar purpose i
planned at the Argonne Nationa
Laboratory near Chicago. The d
sign of both these reactors is d
rected to the problem of powe
generation by nuclear fission but b
different methods, and both are e

HIGHEST STANDARDS
in composition, size and weight

. . . THAT'S KEOKUK ELECTRO-SILVERY

STEEL PLANTS—60-pound Keokuk Electro-Silvery Pigs for blocking the open hearth heat. For equal distribution of silicon and best temperature melt-down. Handle by magnet. FOUNDRIES—30-pound Keokuk Electro-Silvery Pigs for charging mechanically or by hand into the cupola. Easily broken into two or more pieces, handled by magnet and measured by weight. Regular or alloy analysis.

FOUNDRIES—12½-pound Keokuk Electro-Silvery Piglets so uniform in weight that they may be charged into the cupola by count, eliminating weighing operations. Handled by magnet. Regular or alloy analysis.

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KEOKUK, IOWA

KEYSTONE
Galvanized MB
Spring Wire

Keystone's new Galvanized MB Wire offers improved corrosion resistance. It gives added life and strength to mechanical springs subject to rust and corrosion. This is due to Keystone's unique method of galvanizing the wire **before** it is cold-drawn. The drawing process smooths and hardens the galvanized finish, increasing its lasting qualities remarkably. Other advantages are its lustre-bright, shiny smooth finish . . . even, uniform temper . . . and high tensile strength.

Whatever your industrial wire problem might be, Keystone's wire specialists can help solve them for you. You are welcome to call on them at any time.

KEYSTONE STEEL & WIRE COMPANY
PEORIA 7, ILLINOIS

pected to yield important data lea ing ultimately to the design of r actors which will produce power a practical scale. They will also valuable in solving some of t problems involved in "breedin nuclear fuel.

In the operation of a nuclear r actor, the fuel consumed consists fissionable material which produc heat for conversion into power. the so-called breeding proce works as scientists have reason expect, the reactor will more th replenish the fuel consumed in o eration. In addition to producin heat, a breeder type reactor wou convert non-fissionable Uraniu 238 into new fissionable matter.

The area for the new install tion, upon which preliminary co struction work will begin this fa lies near West Milton, 10 mil west of Saratoga Springs and miles northeast of Amsterdam. is about 18 miles north of t Knolls Atomic Power Laborato facilities.

Services of Research Association Extende

London

• • • **In the future,** every ir foundry in the United Kingdo will be entitled to the services the British Cast Iron Researc Assn.

Hitherto, membership has bee voluntary on the part of individu firms. As a result of an arrang ment made by the Joint Iron Cou cil, with the approval of the Ir & Steel Board, a substantial pr portion of the association's futu income will now come from a le on foundry pig iron with the add tion of a government grant.

Under the new arrangement a subscriptions from the Unit Kingdom will receive grant at t rate of £4 for each £4 so su scribed up to a limit of £80,0 per annum.

Voluntary subscriptions fro iron founders in the United Kin dom (over and above that pr vided through the levy) will similarly treated. The effect of t new arrangement will be to rai the association's current inco for the year 1948-9 by appro mately one third to one half.

By means of voluntary su scriptions the total income can

"CHEAP" TOOLS *Shackle* INDUSTRY AND TRADE

Jse of "cheap" metal-
utting tools proves
he adage of "Penny
Nise, Pound Foolish".
heir performance is
nreliable and incon-
istent.

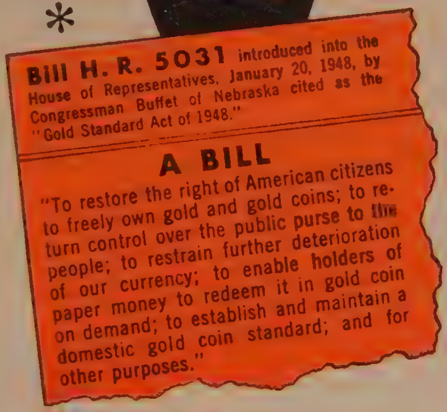
Use of cheap money tools has likewise proved to be "Penny Wise, Pound Foolish". Their purchasing value is uncertain and erratic.

ınd, durable cutting tools are
th the price. A few pennies
litional first cost will save dol-
; of ultimate cost—in grinding,
l inventory, set-up time, and
machine time, with the result
t production is reliable and
ained.

ımerable performance records
tinue to demonstrate the su-
or worth of Kennametal tools in
r ability to reduce over-all costs
tooling and production — and
this consistently. Kennametal
an extra measure of value.
usive processing, scientifically
trolled, assures maintenance
a sound physical structure
ing trustworthy properties of
hardness and great strength.

Sound money is a trustworthy tool of measurement that serves to evaluate accurately the relative worth of goods and services in all sorts of exchange activities. With a stabilized currency an individual knows assuredly the worth of his earnings and reserves — savings, insurance, pensions. A businessman is able to make firm, fair contracts, meet current and future obligations with certainty, and engage safely in creative ventures.

Innumerable historic examples have proved that the convertible Gold Standard is the most useful money system ever devised. Managed currency, initiated 15 years ago in the United States, has impaired our money tool and made it untrustworthy. A return to the historic honest dollar, as proposed in a bill now before Congress*, will have a stabilizing effect on our economic life.



* **Bill H. R. 5031** introduced into the House of Representatives, January 20, 1948, by Congressman Buffet of Nebraska cited as the "Gold Standard Act of 1948."

A BILL

"To restore the right of American citizens to freely own gold and gold coins; to return control over the public purse to the people; to restrain further deterioration of our currency; to enable holders of paper money to redeem it in gold coin on demand; to establish and maintain a domestic gold coin standard; and for other purposes."

While you are waiting for the return of 100 cent dollars, Kennametal tools, of premium value, are waiting for you. They are one technological development that can help mitigate the ill effects of inflation.

KENNAMETAL TOOL BLANKS

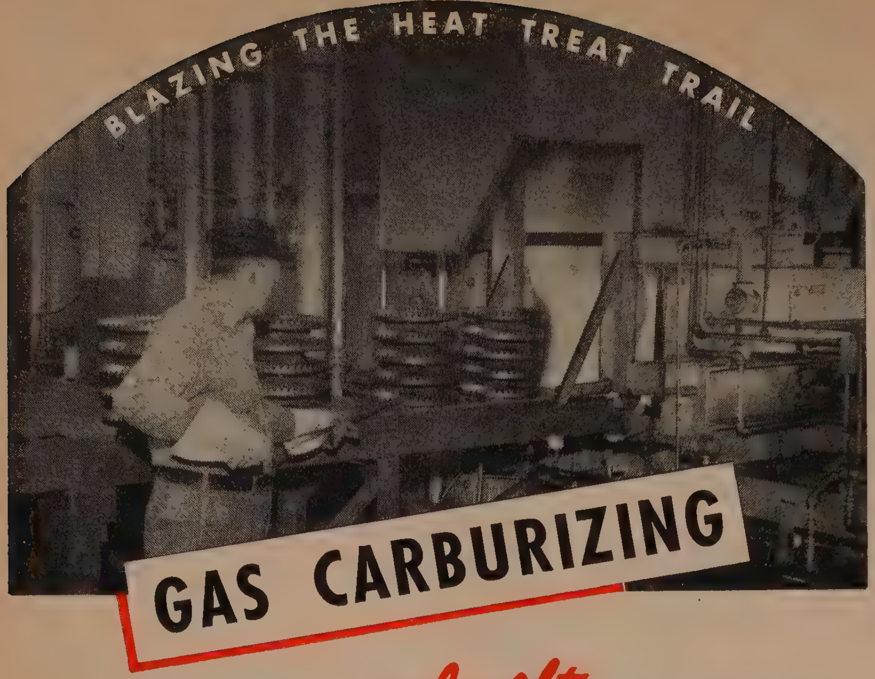
CLAMPED-ON STYLE 12H

BRAZED-ON STYLE BL

KENNAMATIC STYLE 6RK

"UNIVERSAL" FACE KENNAMILL

KENNAMETAL®
SUPERIOR CEMENTED CARBIDES
KENNAMETAL *Inc.*, LATROBE, PA.



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MORE ACCURATE, LOWER-COST CASE HARDENING

HOLCROFT engineers established the basic principle on which *all* modern gas carburizing furnaces operate—namely, that in order to control the process, a non-decarburizing gas must be used to dilute the hydrocarbon gases which supply the carbon for carburizing. In order to *apply* this principle, Holcroft & Company in 1935 designed and built a generator to produce such a diluting gas.

This patented development—resulting from original Holcroft research—brought all the advantages of today's gas carburizing process. These include (1) accurate control of case depth and carbon content; (2) exceptionally clean, soot-free work; (3) a notable increase in furnace alloy and tray life; and (4) greater output with much less labor. Because of these advantages, gas carburizing is rapidly replacing pack carburizing throughout industry.

Further details on the process are given in the Holcroft Gas Carburizing bulletin, available on request.

The Holcroft engineering leadership which developed gas carburizing is available to serve YOU in production heat treat work of every kind. And remember—Holcroft offers you COMPLETE METALLURGICAL AND ENGINEERING SERVICE, from designing the furnace to your individual needs through the trial run in your plant. We invite your inquiries.

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1017 PEOPLES GAS BLDG.

CANADA
WALKER METAL PRODUCTS, LTD.
WALKERVILLE, ONTARIO

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R. E. McARDLE
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raised still further toward the figure of £400,000 per annum regarded by the Council as necessary if the association's usefulness to the industry is to be fully realized.

Diamond Alkali Co. Forms New Division Of Technical Service

Cleveland

• • • **Diamond Alkali Co.** has created a new technical service division headed by Walter C. Bates, manager, and Dr. George F. Rugar, assistant manager. The new organization is designed to cover "all phases of service work connected with the sale and use of Diamond-made alkalies, co-products, and derivative specialty chemicals."

C. C. Brumbaugh, general manager of Diamond's research and development department, said that while the newly formed division has been set up as an integral part of the research-development organization located at the company's Painesville, Ohio, plant, it will function as a separate unit manned by a staff of 21 technical people recruited from the company.

These two main functional classifications include such allied responsibilities as quality control changes, modification of materials, exploration and development of additional uses for existing products, discovery of applications for new products, market analysis and sales promotion of chemicals in pilot-scale or initial production stages, and preparation of technical literature on new or improved products.

Eastern Foundrymen Meet

Boston

• • • **The** eighth New England Foundry Conference was held at Massachusetts Institute of Technology at Cambridge recently. The conference was sponsored by the New England Foundrymen's Assn., M.I.T., American Foundrymen's Society, Boston Chapter of Nonferrous Foundrymen, Connecticut Nonferrous Foundrymen's Assn. and the M.I.T. Chapter, American Foundrymen's Society. David L. Parker, Lynn Electric Co., was chairman of the committee.

Boon to Product Designers

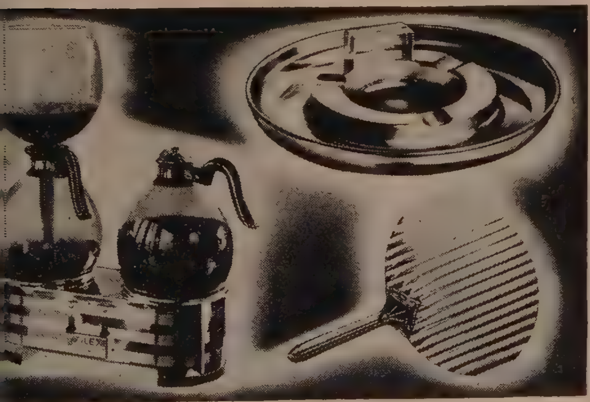
TARTLING NEW DESIGN EFFECTS OFFERED BY PLATED METAL PATTERNS AND FINISHES

roduct designers are "going to town" on eye eal and economy with the wide selection of beau- l plated metal patterns and finishes offered by erican Nickeloid.

inished raw materials — ready made for forming assembly of the finished product — are seen in tartling variety of plated steel, brass, aluminum, per and zinc. Bright and satin finishes in eye- hing stripes, crimps and corrugated patterns. quered finishes to preserve the lustrous surface of ss and copper coated metals. Optional MAR-NOT ing to protect metal finishes during severe draw- and forming. Every plated metal pattern beauty- ored to glamorize a thousand products — and as able as it is attractive.

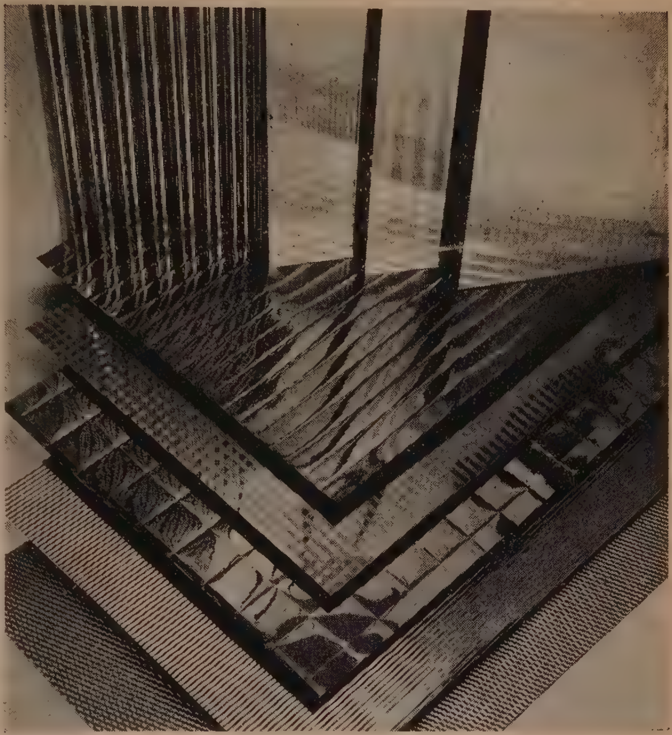
ut there's more to the story than beauty and ability. Nickeloid metals plated with nickel, me, brass and copper SAVE MONEY. By pur- sing *pre-finished metals*, manufacturers save the ly steps of plating, polishing, and refinishing. ause they are easily stamped, formed and drawn can be successfully soldered, riveted, spot welded they're ready to take the shape of the finished duct when you buy them.

vailable in flat sheets or coils, plated on one or sides, Nickeloid metals come in many gauges tempers. Write today for the new Nickeloid al Fabrication Handbook, your index to greater s with modern metals.



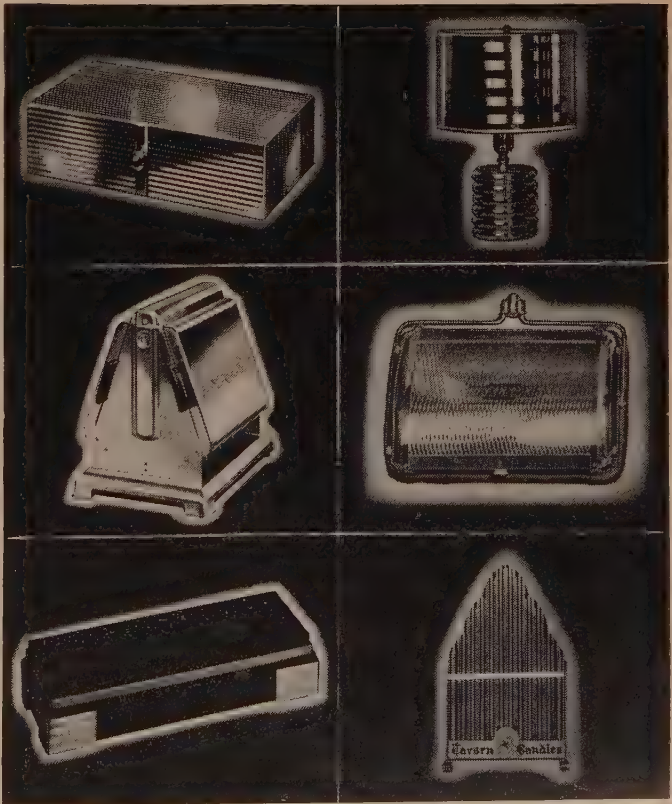
MERICAN NICKELOID COMPANY

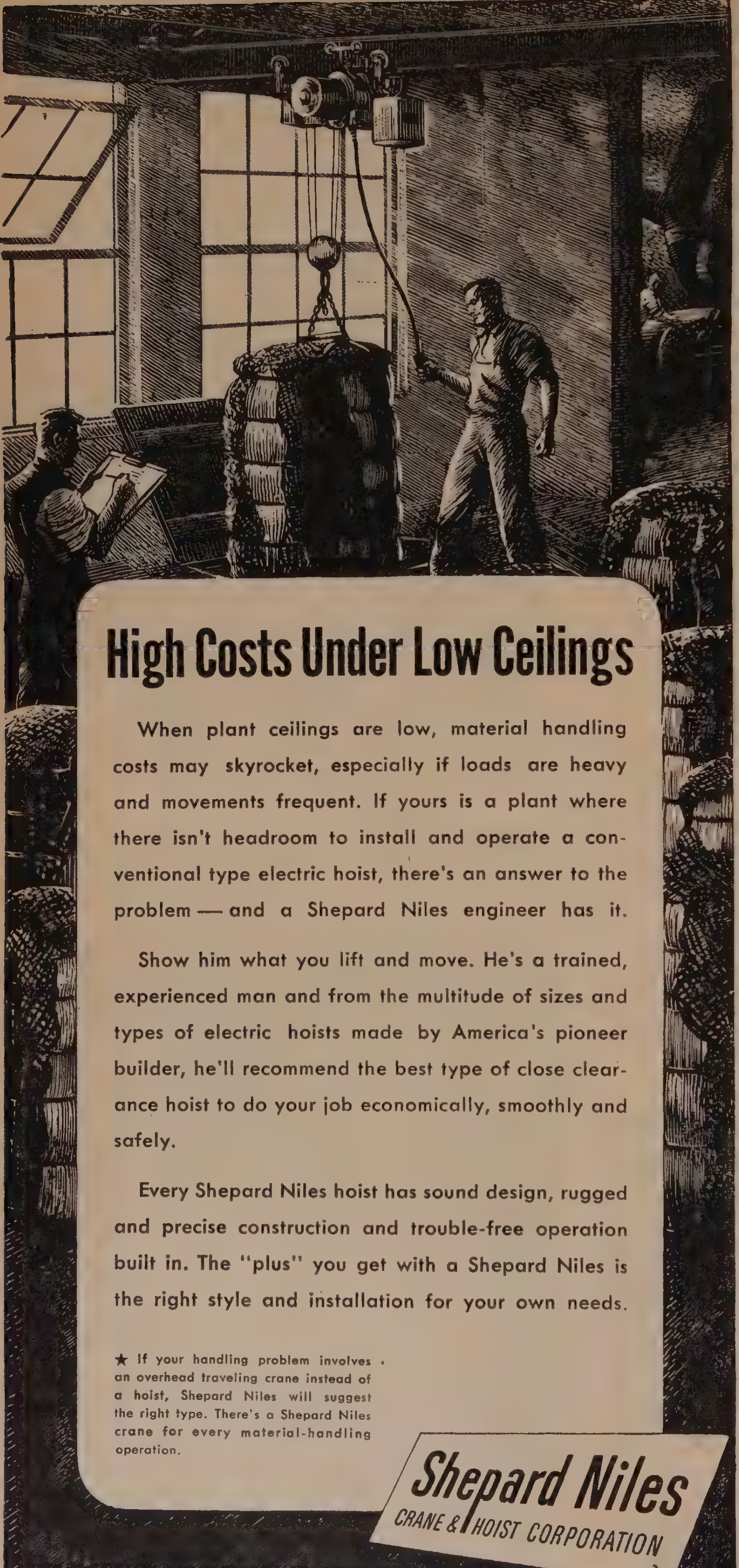
PERU 2, ILLINOIS



Every one an eye-catcher, these Nickeloid Metal patterns are ready for fabrication into a variety of products.

PRE-FINISHED METALS WIDELY USED IN CLASS MERCHANDISE





High Costs Under Low Ceilings

When plant ceilings are low, material handling costs may skyrocket, especially if loads are heavy and movements frequent. If yours is a plant where there isn't headroom to install and operate a conventional type electric hoist, there's an answer to the problem — and a Shepard Niles engineer has it.

Show him what you lift and move. He's a trained, experienced man and from the multitude of sizes and types of electric hoists made by America's pioneer builder, he'll recommend the best type of close clearance hoist to do your job economically, smoothly and safely.

Every Shepard Niles hoist has sound design, rugged and precise construction and trouble-free operation built in. The "plus" you get with a Shepard Niles is the right style and installation for your own needs.

★ If your handling problem involves an overhead traveling crane instead of a hoist, Shepard Niles will suggest the right type. There's a Shepard Niles crane for every material-handling operation.

Shepard Niles
CRANE & HOIST CORPORATION

356 SCHUYLER AVENUE • MONTOUR FALLS, N. Y.

Benefit Assn. Men Who Cover Million Workers Will Meet in Chicag

Weirton, W. Va.

• • • **The Federation of Em**ployees' Benefit Assns. celebrate its second anniversary in November when its members, representing more than a million industria employees, meet in Chicago for th second of its semiannual conferences in 1948.

The Federation was organize in September 1946, when administrators of benefit plans in different industries explored the possibility of organizing to exchang information on their problems.

Since its organization, it ha been headed by Herbert A. Hillman, manager of the Employees Benefit Assn., Youngstown Shee & Tube Co. H. Burdette Crow special representative, Weirto Steel Co., is vice-president, an A. E. Bosley, secretary of th Goodyear Relief Assn., is secretary-treasurer.

"Furnishing health benefits fo workers in industry requires th expenditure of many millions o dollars annually," officials of th Federation report. "Careless planning can incur enormous waste . . . In the past this has receive too little thought and a notabl lack of coordinated effort on th part of employers. . . . This practice only too often retards the e tension of adequate protection fo employees, many of whom are r ceiving only a minimum of r quirements, or less."

The federation is made up o administrators who direct employees' benefit groups, defined i the association's code of regul tions as "any organization of employees, incorporated or uninco porated, organized on a nonprof basis for the principal purpose o providing any type of health o life insurance to its own members. . . ."

The success of this type of ben fit organization has been large due to the ability to provide i expensive but adequate insuran protection of large groups of e ployees through an organizatio supervised by the employees themselves, a federation official said. I claims that this gives the e ployee a feeling of responsibili and personal satisfaction in a

ing his fellow employees when
d arises.

'hree states, Rhode Island, Cali-
nia and New Jersey, have en-
ed legislation providing for dis-
lity pay during periods of ill-
s or nonindustrial accident.
e federation asserts that the
wth of a movement of this kind
1 be guided in the right direc-
n if sufficient employer and em-
yee groups know about the Fed-
tion of Employees' Benefit
ns. and join it.

The federation also gathers the
perience of its participating
encies on the problems in their
ns and makes that experience
ilable to members. Thus, it
s, participants who wish to cor-
t a defect in a plan can be guid-
by the experience of the suc-
sful operators on the part in
estion. Similarly, those wishing
start a new program can draw
on the experience of those who
ve operated similar plans.

Finally, the organization fur-
hes information to those inter-
ed in additional plans at the
te level.

Members of the board of trus-
s in addition to Mr. Hillman,
o is chairman, are: Thomas
nlop, president, Allis-Chalmers
tual Aid Society, Milwaukee;
N. Braine, manager, General
lls Health Assn., Minneapolis;
. Bosley, secretary, Goodyear
lief Assn., Akron, Ohio; Gerald
Hurst, director, Employees Mu-
.l Benefit Assn., Wisconsin Pow-
& Light Co., Milwaukee; Mr.
ow, director, Employees' Relief
Beneficial Assn., Weirton Steel
., Weirton, W. Va.; H. G. Ho-
th, assistant treasurer, Jewel
a Co., Barrington, Ill.; and
bert W. Mull, assistant secre-
y, Textile Employees' Benefit
sn.

et Earnings Increase

como, Ind.

• **In the quarterly** report of the
ntinental Steel Corp. net earn-
s for the corporation in the
rd quarter were $407,838. This
s equivalent to 81¢ a share on
common shares outstanding.
earnings of $357,036 were
de by this company in the third
rter of last year. A dividend
25¢ a share on the common
res was declared Aug. 17 and
d Sept. 15 of this year.

AT EXIT & ENTRANCE TO BKLYN.-BATTERY TUNNEL

OUTSTANDING LARGE BROOKLYN INDUSTRIAL PROPERTY

ENTIRE SQUARE BLOCK

VAN BRUNT, IMLAY, SUMMIT & BOWNE STREETS
AT INTERSECTION OF HAMILTON AVENUE
1 BLOCK FROM ATLANTIC BASIN

PLOT 83,000 SQ. FT. • **136,000 SQ. FT.** • IN 8 MODERN BUILDINGS

To be offered by order of
ATLANTIC BASIN IRON WORKS
In Parcels and as Entirety at

AUCTION WED. NOV. 17
2 P. M. ON PREMISES

MACHINERY, EQUIPMENT, INVENTORY, SMALL TOOLS, ETC., WILL BE SOLD BY INDUSTRIAL PLANTS CORPORATION OF 90 WEST BROADWAY, N. Y. C. AT PUBLIC AUCTION DURING WEEK OF NOVEMBER 22ND.

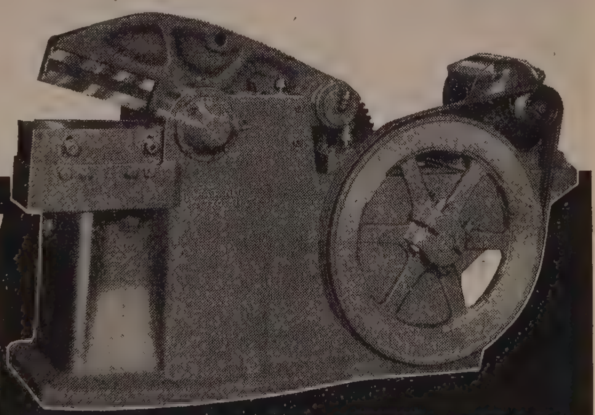
Send for Booklet IA-2—Information Re Broker's Participation On Request
FIRM AFFILIATE—SOCIETY OF INDUSTRIAL REALTORS

Chrysler Bldg.
New York City 17
LEx. 2-5000

Joseph P. Day
BERNARD P. DAY, Pres. INC.

AUCTIONEERS:
F. P. Day, V.P.
S. A. McDonald, V.P.
D.J. McElveney, Jr., V.P.

53 YEARS OF AUCTION LEADERSHIP



THE NEW CANTON No. 00

FOR SHEARING LIGHT SCRAP AND FOR CUTTING METALS

Featuring

ADJUSTABLE KNIFE SEAT: Requires no shimming after knives have been re-ground.

BRONZE BUSHINGS: King pin, crank-shaft and counter shaft completely bronze bushed.

CAPACITY: 1½" rounds or squares in mild steel and 3/8 x 12" in plates. Knives 12" long.

PLUS: All the other improved features built into the complete new line of "CANTON" Alligator Shears.

THE HILL ACME COMPANY

"CANTON" DIVISION • Cleveland 2, Ohio

"CANTON" ALLIGATOR SHEARS • PORTABLE FLOOR CRANES • ALSO MANUFACTURERS OF "HILL" GRINDING AND POLISHING MACHINES • HYDRAULIC SURFACE GRINDERS • "ACME" FORGING THREADING • TAPPING MACHINES • "CLEVELAND" KNIVES • SHEAR BLADES

THEY'RE THE POPULAR

UNBRAKO
Reg. U. S. Pat. Off.

A
Pat'd and
Pats. Pend.

"Unbrako" Socket Set Screw with *Knurled* Cup Point.

"Unbrako" Socket set Screw with *Knurled* Threads.

Knurling of Socket Screws originated with "Unbrako" in 1934.

Write us for the name and address of your nearest "Unbrako" Industrial Distributor and your copy of the "Unbrako" Catalog.

SELF-LOCKING
SOCKET SET SCREWS
. . . They're *KNURLED!*

(A) The KNURLED cup point of this popular "Unbrako" Socket Set Screw—upper left—makes it a *Self-Locker* . . . because the keen edges of the counter-clock-wise KNURLS definitely prevent creep, regardless of the most chattering vibration. A real fastener, if ever there was one . . . positively won't shake loose!

(B) The KNURLING of this patented "Unbrako" Socket Set Screw — lower left — as shown — *swages* the threads, so that it becomes a most excellent *Self-Locker* . . . for use where the type of point does not lend itself to knurling—a Set Screw that positively *won't shake loose!*

OVER 45 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN, PA. BOX 523

BRANCHES CHICAGO - DETROIT - INDIANAPOLIS - ST. LOUIS - SAN FRANCISCO

A WATCH
OR A PRINTING PRESS
NEEDS PERMANENT ALIGNMENT
and GRAND RAPIDS GRINDERS
deliver continuous micro-accuracy*

The micro-accuracy of Grand Rapids Grinders comes, in part, from Gallmeyer & Livingston's unique method of making massive, one-piece column and base castings of close-grained gray iron . . . achieving vibrationless rigidity and permanent alignment between cross-travel ways and vertical head ways.

Other assurances of long-life accuracy in Grand Rapids Grinders include: patented vertical head adjustment; flanged type, pre-loaded ball bearing spindle; and the fastest longitudinal table speed available in any grinder.

*Accuracy within 0.00025 limits

To serve you—*Your inquiry concerning your specific grinding needs will receive prompt attention. Grand Rapids Grinders include: Hydraulic Feed Surface Grinders, Universal Grinders, Hand Feed Surface Grinders, and Combination Tap and Drill Grinders.*

GALLMEYER & LIVINGSTON COMPANY

GRAND RAPIDS GRINDERS

200 STRAIGHT AVE., S.W., GRAND RAPIDS 4, MICHIGAN

Development of Human Relations Must Pace Technological Growt

Cleveland

• • • **Human relations** must be d
veloped to keep pace with th
technological growth of America
industrial economy, according
John E. Goble, president of U.
Steel's National Tube Co.

Mr. Goble said that while muc
energy and thinking has been con
centrated on the country's phys
cal growth in the machine age, n
enough general recognition ha
been given to the human phase
of our development.

"Now our human or social dif
culties have begun to catch u
with us," he said. "We have th
physical equipment and know
edge to satisfy enormous pent-u
demands, and yet our use of thes
facilities is impeded by impro
erly adjusted social factors.

"The challenge of further pro
ress lies not so much in the phys
cal development of machines
in the development of cooperati
attitudes in human beings."

Speaking of industrial advance
he said each major new develo
ment has magnified social pro
lems and caused a greater soci
impact on the individual.

Pointing out that since the e
of the war, non-use of machine
due to disagreements has cost
million tons of steel, two millio
automobiles, 100,000 tractors, a
135 million tons of coal, M
Goble asserted: "This is certain
evidence of a serious fundament
confusion, one that surpasses th
problems connected with advanc
ment in the engineering and phy
ical sciences."

Develops New Fire Fluid

New York

• • • **In a joint announcement,**
Douglas Aircraft Co. and Mo
santo Chemical Co. announced d
velopment of a new fire resista
hydraulic fluid for use in aircra
Such a product has long be
sought as a vital factor in safe o
eration of modern transport a
war planes.

Notable characteristics of th
new fluid in addition to its fire
sistant qualities, include a hi
viscosity index, with little chan
of viscosity over a wide temper

e range, and a lubricity proven reatly extend the life of pumps other moving parts.

ome 78 formulas were studied the laboratory and 28 fluids e subjected to extensive hyulic system testing before the t desirable compound was ablished.

eel Defense Campaign Fights Nationalization

don

• **The bitter controversy** over el nationalization continues unted in Britain. To make the tle more interesting a new apon has been brought into the flict.

steel defense campaign has n instituted to fight the naalization movement. One of committee responsible for the npaign and a leading protagonis Alfred Edwards, member of rliament for East Middlesugh, who was expelled recently n the Labor party because of opposition to official policy on question of nationalization.

The organization will continue being until the next general ction and will fight against the reaching the statute book. ss meetings will be held in all centers, while books and pamets showing how the steel intry has reached its present ition of prosperity through nagement and control by prie enterprise will be issued.

film of the industry will be de and shown in movies oughout the country and disyed newspaper advertisements tell the story of steel and at steel means to the nation. Edwards in the meantime has the country for an extended t to North America.

oanding Office Space

Vernon, Ohio

• **Cooper-Bessemer Corp.** will n start construction of a quarmillion dollar addition to its n office building here, to pro- additional space for research engineering divisions.

The new addition will provide e 19,800 sq ft of area excluy for engineering and rerch activities, and will be conted with the company's main inistration offices.

MATERIALS-HANDLING EQUIPMENT

THAT SPEEDS WORK, SPARES MEN, SLASHES COSTS

No other Mobile Crane of this type has all the features of ***KRANE KAR***. More goes into ***KRANE KAR*** . . . you get more out of ***KRANE KAR*** . . . more speed, more work, more safety. Loads and Unloads freight cars, trucks, trailers . . . Stacks and Stores . . . expedites Plant Maintenance.

KRANE KAR handles steel stock and forms of any shape or size within capacity (or scrap when equipped with magnet); transmission cases, motors, crankcases, transformers, etc. Works in tight quarters, low headroom, up and down ramps . . . anywhere, in plant or yard. Often cuts handling costs to 8¢ a ton.*

Safest Crane in its class, minimizing injury risks to men, materials, machine. ***Self-Stabilizing:*** dangerous use of jacks or stabilizers eliminated. ***Automatic Power Cut-Off*** at extreme positions of Boom-Swing or Topping. ***Automatic Braking*** of Load and Boom Lines. ***No Tail-Swing:*** no part of Crane passes over operator's head.

Gas or Diesel. 9 to 37 ft. booms or adjustable telescopic booms; Electric magnet, clamshell bucket, and other accessories available. Ask for illustrated bulletin #79.

USERS: General Motors, Bethlehem Steel, Boeing, Pullman-Standard, Lima Locomotive, Carnegie-Illinois, U. S. Steel, Basic Magnesium, etc.

KRANE KAR *will transport any load it can lift—at sides as well as at front.*

THE ORIGINAL SWING-BOOM MOBILE CRANE WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER

1¼, 2½, 5, AND 10 TON CAPACITIES

KRANE KAR

TRADE MARK REGISTERED

SILENT HOIST & CRANE CO., 851 63rd ST., BKLYN 20, N.Y.

TESTED 5 TONS

Since 1854

CLARK

Bolts • Nuts • Screws and Rivets

have built an enviable reputation and plant, established on the Quality and Dependability found in all Clark Bros. Products.

CLARK BROS BOLT CO.

MILLDALE, CONN.

Little Improvement in Business Expected Before Next April

• • • **A pre-election slump** became the post-election doldrums for many segments of the machine tool industry this week and despite the promise of some orders under ECA and a slight general improvement in inquiries, trade sources were giving lip service, at least, to the sad suspicion that there won't be much machine tool business before Spring.

While ECA authorized $56 million for machine tool orders to be placed with United States builders before July 1, 1949, some observers believe the industry continues to suffer from attrition, because ECA has also authorized some $50 million for machine tool orders for British builders, whose industry is one third the size of the United States industry and working at capacity. British deliveries are already greatly extended, while the United States machine tool industry is almost idling along at about 50 pct of capacity.

ECA's action, however, is in line with the theory that funds must be used to stimulate trade between the 16 participating nations. As regards the $56 million for United States builders, there is considerable skepticism on the part of industry observers, who are currently operating on a "seeing is believing" basis where government programs are concerned.

Still an important factor in market outlook is the defense program which has been very slow in developing along lines that produce machine tool orders, but the potential is still there.

Very few machine tool company representatives who made the pilgrimage to Europe last summer got into Germany, but the report that Germany is where the real European machine tool market lies is being circulated through trade circles.

Bridgeport Safety Emery Wheel Co., Inc., Bridgeport, Conn., filed suit for bankruptcy last week and announced that the plant was closed. This is probably not so much a sign of the times as an indication that the very gradual evolution of the machine tool industry toward larger companies, companies big enough and perhaps sufficiently diversified to ride out the economic tides is inevitable.

$50 Million Authorization For British Industry Working At Capacity a Folly

o o o

By and large, shipments are up and orders are down. The present ratio of unfilled orders to shipments, according to National Machine Tool Builders' Assn. figures, is 4.3 to 1, or about 4 months' shipments at the present rate. In June, the ratio dropped to 3.8 to 1, but jumped to 5.9 to 1 the following month. A similar resurgence is not anticipated at this time, however, by trade sources, who unhappily add that when backlogs are low, shipments fall off because companies cannot balance production.

On the other hand, some machine tool companies are having a very good year. One major midwestern producer reports a 15 pct increase in sales over 1947. Bookings at the end of the third quarter were $11 million compared with $8 million for the corresponding period of 1947.

Collections are giving cause for concern in some sales sectors, notably Chicago, while machine tool builders in other areas report difficulties in collecting on foreign sales, particularly from Argentina.

In Chicago, deliveries of steel plate to builders of large presses have become so poor that their promises on machines are tied up in knots. Some makers of large presses refuse to even quote because they have no plate inventories and they don't know when they are going to get plates with which to make the machines. Others, however, will give 6 to 7 months promises. It is understood they are doing so with their fingers crossed.

Deliveries of standard machin tools generally remain good, business is spotty, but a lot of inquiries are coming through. Thi volume of inquiries was expecte after the lull during the summe months.

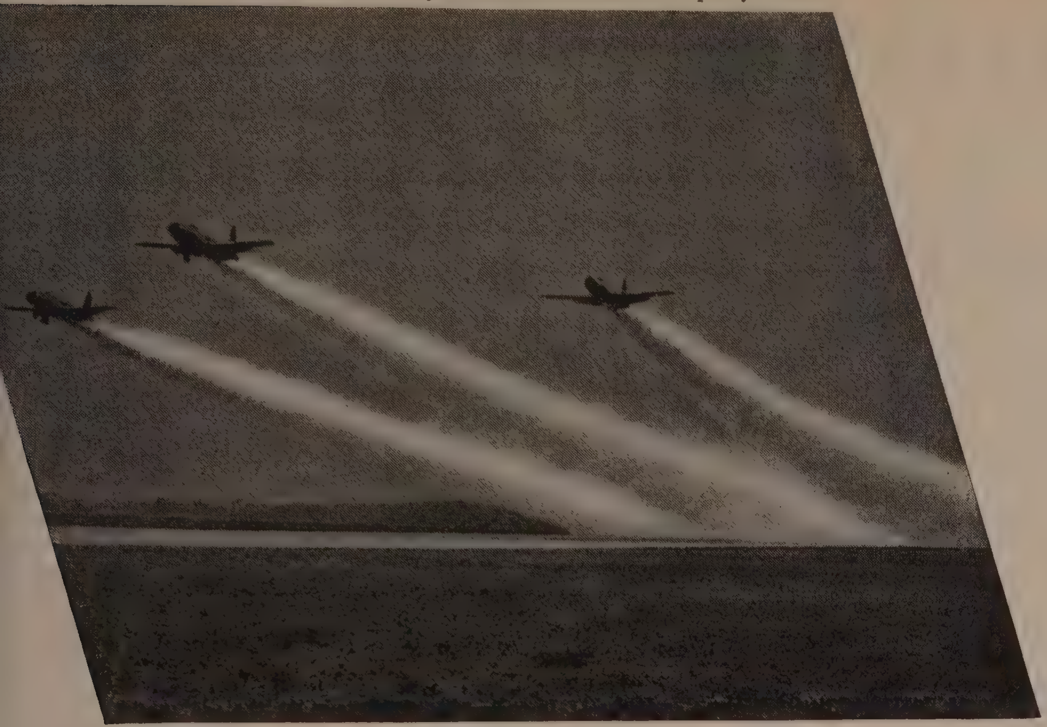
Many buyers are questionin whether or not they should instal new machine tools at the presen price level. They are wonderin if 3 to 4 years hence the same toc might not be available at a muc lower price. Figuring 60 pct depreciation over this period, machine tool salesmen are hammering away on the fact that shoul business activity level off or drop the price level will probably be suc that today's values will not be ou of line.

Credit has been a problem an is becoming larger. For some tim prompt payment for machiner has been the exception rather tha the rule. Even large companie are now taking 60 to 90 days t pay an invoice. In many case tools going to small manufacturers are protected with ever kind of device possible in orde to insure payment. Chattel mortgages, which a few years ago wer unheard of, are today becomin quite prevalent.

Machine tool executives in thi area question the wisdom of pilc line educational orders to manufacturers as far as the machin tool industry is concerned. The point out that the type and number of machines for a pilot production line are vastly differen from what will be needed shoul an emergency arise.

The number and type of operations done on any particular machine, they say, varies so tremendously on small lot jobs compare to mass production that all that pilot line educational order actually does is educate the make concerning the specific details the mechanism or product whic he will make.

Forerunners of airplanes that will soon consistently crack the sonic wall are these jets—here rocket-assisted to speedy take-off.



More Press Power to you

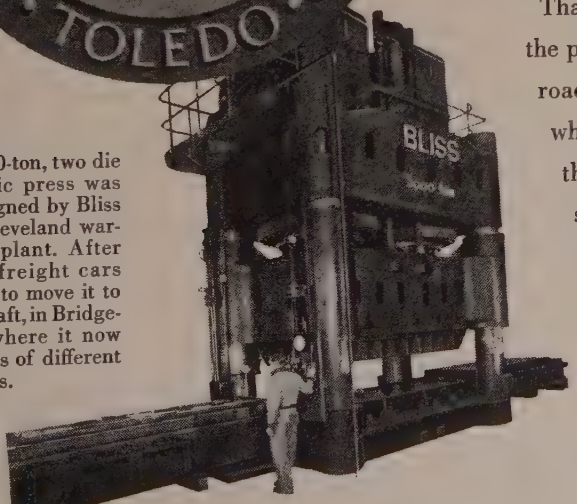
MARQUETTE · BLISS · CONSOLIDATED · TOLEDO

BLISS BUILT

If you're worried about the "producibility" of your aircraft design, Bliss engineers can help. To match the tough, new alloys, they offer the proven ability to bring *more press power* to you.

For Bliss has never hesitated to pioneer in press design and improvement. They will meet the challenge of austenitic steels and other alloys with advanced engineering techniques and a fund of development engineering knowledge and experience that goes back over 90 years.

That's why Bliss presses predominate throughout the pressed metal field, the aircraft, automotive, railroad, electrical, and many other industries...that's why presses for the toughest jobs are *Bliss-built*... that's why your problem will be nearer solution by sending for a Bliss sales engineer today.



This giant 5000-ton, two die slide hydraulic press was originally designed by Bliss for use in a Cleveland wartime bomber plant. After the war, ten freight cars were required to move it to Sikorsky Aircraft, in Bridgeport, Conn., where it now forms hundreds of different helicopter parts.

See our Catalog in Sweets or write for Bulletin 35-B

E. W. BLISS COMPANY, DETROIT 2, MICHIGAN

Mechanical & Hydraulic Presses, Rolling Mills, Container Machinery

WORKS AT: Toledo, Cleveland, Salem, Ohio; Hastings, Mich.; Englewood, N. J.; Derby, England; St. Ouen sur Seine, France.

BLISS BUILDS MORE TYPES AND SIZES OF PRESSES THAN ANY OTHER COMPANY IN THE WORLD

Lead Advances 2 Cents Per Lb. to Set a New All-Time High

Change in Brass Order Basis Makes Consumers Expect Other Price Hikes

○ ○ ○

New York

• • • **The prospect of** higher metal prices held the attention of producers and consumers last week and on Monday the price of lead was advanced 2¢ per lb by American Smelting & Refining Co. and St. Joseph Lead Co. This brings lead to a new all-time high of 21.30¢ St. Louis, 21.50¢ New York. The increase in the price of lead had long been expected by consumers in the knowledge that heavy premiums were being paid for foreign and secondary lead. Tonnages of Australian lead have been coming into market for some time at 21.50¢. At the previous domestic price, there were no worthwhile tonnages available to the market.

There is no indication that the higher price will bring about any additional production of lead, but it should serve to control the tendency to siphon metal off to the premium market, and there may be some diversion of demand for lead into other products. The shortage is not expected to be relieved appreciably by the increase, but St. Joseph Lead Co. deliveries in November should reach their previous normal levels from the 60 pct rate that prevailed last month.

An indication that consumers are expecting further increases in the prices of metals lies in the action taken by several brass mills last week in changing over their order basis to that of price prevailing at the time of shipment. The previous basis was a 60-day firm price guarantee. In addition orders will be entered for production only if they can be scheduled for shipment within a 60-day period. Other orders will be held by the mills for future scheduling within the 60-day period. This action was initiated by the American Brass Co. effective Oct. 28.

Monthly Average Prices

• • • The average prices of the major nonferrous metals in October based on quotations appearing in THE IRON AGE, were as follows:

	Cents Per Pound
Electrolytic copper, Conn. Valley	23.50
Lake copper, Conn. Valley	23.625
Straits tin, New York	$1.03
Zinc, East St. Louis	15.19
Zinc, New York	15.74
Lead, St. Louis	19.30
Lead, New York	19.50

The shortage of all grades of zinc has not been relieved by the increases that went into effect several weeks ago. The market is very strong and some imported metal is coming in at 15.50¢ plus duty, which brings it to 16⅜¢. Exported zinc is not being offered below 16¢ f.a.s., the equivalent of a 17¢ domestic market price. At this price the supply is limited and market factors would be glad to buy tonnages at this figure. Two zinc producing plants of the American Zinc, Lead & Smelting Co. are still out on strike, having been out of production for 2½ months. There is no prospect of an early end to the strike as management and union are not meeting.

The copper situation has grown very critical because of the shutdown of the Bingham Canyon Utah mine of Kennecott Copper Co. due to the strike of railroad men there. This shutdown causes a loss of an estimated 5000 tons of copper a week. Consumers are desperately seeking to place orders, but only the major producers are still selling on the basis of 23.50¢ per lb. Custom smelters are selling on the basis of the average monthly price. Export business is still being taken at 23.50¢. Under these circumstances, brass mills wire mills and refineries are actively competing for scrap and the price is rising. Last week dealers buying prices were raised by ½¢ per lb, after a similar rise two weeks ago. Ingot makers' brass ingot prices were raised by ¾¢ to compensate for the tighter scrap market. Scrap dealers have a bullish sentiment and there is some thought that they may be holding for a rise.

The secondary aluminum market was also raised by ½¢ to ¾¢ last week, after corresponding increases in the scrap market. Aluminum scrap has become scarcer than in recent months due to renewed buying by foundries for the heavier casting demand now beginning to appear for armament needs. Dealers' prices for lead scrap were raised last week, before the increase in the price of lead, by about 1¢ per lb.

Every increase in the price of the strategic metals serves to build up the cost of stockpiling In view of the several recent increases and others that can be expected to follow, it is conceivable that stockpile objectives may be temporarily limited by the size of available funds. The present tightness of most metals caused by strikes and impending price increases will certainly make it much more difficult for producers to sell metals to the government

Nonferrous Metals Prices

	Oct. 27	Oct. 28	Oct. 29	Oct. 30	Nov. 1	Nov. 2
Copper, electro, Conn.	23.50	23.50	23.50	23.50	23.50	23.50
Copper, Lake, Conn.	23.625	23.625	23.625	23.625	23.625	23.625
Tin, Straits, New York	$1.03	$1.03	$1.03	$1.03	$1.03	$1.03
Zinc, East St. Louis	15.50	15.50	15.50	15.50	15.50	15.50
Lead, St. Louis	19.30	19.30	19.30	19.30	21.30	21.30

Primary Metals

ents per lb, unless otherwise noted)

minum, 99+%, 10,000 lb, freight lowed	17.00
minum pig	16.00
imony, American, Laredo, Tex.	38.50
yllium copper, 3.75-4.25% Be ollars per lb contained Be	$24.50
yllium aluminum 5% Be, dollars er lb contained Be	$52.00
mium, del'd	$1.90
alt, 97-99% (per lb)	$1.65 to $1.72
per electro, Conn. Valley	23.50
per, lake, Conn. Valley	23.625
d, U. S. Treas., dollars per oz.	$35.00
ium, 99.8%, dollars per troy oz.	$2.25
ium, dollars per troy oz.	$110 to $120
d, St. Louis	21.30
d, New York	21.50
gnesium, 99.8+%, f.o.b. Freeport, ex.	20.50
gnesium, sticks, carlots	34.50
rcury, dollars per 76-lb flask, o.b. New York	$75 to $78
kel, electro, f.o.b. New York	42.90
ladium, dollars per troy oz.	$24.00
tinum, dollars per troy oz.	$93 to $96
er, New York, cents per oz.	74.75
, Grade A, New York	$1.03
c, East St. Louis	15.50
c, New York	16.15
conium copper, 20 pct Zr, per lb ontained Zr.	$8.75

Remelted Metals

Brass Ingot

ublished prices, cents per lb delivered, carloads)

5-5-5 ingot		
o. 115	20.75*	22.00
o. 120	20.25*	21.50
o. 123	19.75*	21.00
10-10 ingot		
o. 305	....	27.25
o. 315	....	24.25
10-2 ingot		
o. 210	....	33.00
o. 215	....	31.00
o. 245	25.00*	25.75
low ingot		
o. 405	17.00*	17.50
nganese bronze		
o. 421	....	23.00

F.o.b. Philadelphia.

Aluminum Ingot

(Cents per lb, lots of 30,000 lb)

5 aluminum-silicon alloys	
.30 copper, max.	28.00–28.50
.60 copper, max.	28.75–29.50
ton alloys (No. 122 type)	25.25–25.50
12 alum. (No. 2 grade)	24.50–25.25
alloy	24.75–25.50
alloy	25.25–25.75
alloy	29.50–29.75
S-679	25.25–25.50

Steel deoxidizing aluminum, notch-bar granulated or shot

ade 1—95 pct-95½ pct	27.00–27.50
ade 2—92 pct-95 pct	25.25–25.75
ade 3—90 pct-92 pct	24.75–25.25
ade 4—85 pct-90 pct	24.25–24.75

Electroplating Supplies

odes

(Cents per lb, freight allowed, in 500 lb lots)

oper	
Cast, oval, 15 in. or longer	40⅛
Electrodeposited	34⅜
Rolled, oval, straight, delivered	37.34
Ball anodes	38⅜
ass, 80-20	
Cast, oval, 15 in. or longer	35⅞
c, oval, 99.99	22.50
Ball anodes	20.50
kel 99 pct plus	
Cast	59.00
Rolled, depolarized	60.00
dmium	$2.00
ver 999 fine, rolled, 100 oz. lots, er troy oz, f.o.b. Bridgeport, onn.	81½

emicals

(Cents per lb, f.o.b. shipping point)

oper cyanide, 100 lb drum	46.00
oper sulfate, 99.5 crystals, bbls.	9.10
kel salts, single or double, 100 lb ags, frt. allowed	18.50
kel chloride, 300 lb bbl.	24.50
ver cyanide, 100 oz. lots, per oz.	62
lium cyanide, 96 pct domestic 00 lb drums	16.00
c sulfate, crystals, 22.5 pct, bags	5.90
c sulfate, 25 pct, granules, bbls. rt. allowed	7.90

Mill Products

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.188 in., 2S, 3S, 26.9¢; 4S, 61S-O, 28.8¢; 52S, 30.9¢; 24S-O, 24S-OAL, 29.8¢; 75S-O, 75S-OAL, 36.3¢; 0.081 in., 2S, 3S, 27.9¢; 4S, 61S-O, 30.2¢; 52S, 32.3¢; 24S-O, 24S-OAL, 30.9¢; 75S-O, 75S-OAL, 38¢; 0.032 in., 2S, 3S, 29.5¢; 4S, 61S-O, 33.5¢; 52S, 36.2¢; 24S-O, 24S-OAL, 37.9¢; 75S-O, 75S-OAL, 47.6¢.

Plate: ¼ in. and heavier: 2S, 3S, F, 23.8¢; 4S-F, 26¢; 52S-F, 27.1¢; 61S-O, 26.6¢; 24S-F, 24S-FAL, 27.1¢; 75S-F, 75S-FAL, 33.9¢.

Extruded Solid Shapes: Shape factors 1 to 4; 35.1¢ to 66¢; 11 to 13, 36.1¢ to 78¢; 23 to 25, 38.2¢ to $1.07; 35 to 37, 45.7¢ to $1.65; 47 to 49, 67.5¢ to $2.41.

Rod, Rolled: 1.064 to 4.5 in., 2S-F, 3S-F, 34¢ to 30.5¢; Cold-finished, 0.375 to 3.5 in., 2S, 3S, 36.5¢ to 32¢.

Screw Machine Stock: Drawn, ⅛ to 11/32 in., 11S-T3, R317-T4, 49¢ to 38¢; cold-finished, ⅜ to 1½ in., 11S-T3, 37.5¢ to 35.5¢; ⅜ to 2 in., R317-T4, 36.5¢ to 33.5¢; rolled, 1 9/16 to 3 in., 11S-T3, 35.5¢ to 32.5¢; 2⅛ to 3⅜ in., R317-T4, 32.5¢ to 31.5¢. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in.: 2S, 36¢ to 26.5¢; 52S, 44¢ to 32¢; 56S, 47¢ to 38.5¢; 17S-T4, 50¢ to 34.5¢; 61S-T4, 44.5¢ to 34¢; 75S-T6, 76¢ to 55¢.

Magnesium

(Cents per lb, f.o.b. mill, freight allowed Base quantity 30,000 lb)

Sheet and Plate: Ma, FSa, ¼ in., 54¢-56¢; 0.188 in., 56¢-58¢; B & S gage 8, 58¢-60¢; 10, 59¢-61¢; 12, 63¢-65¢; 14, 69¢-74¢; 16, 76¢-81¢; 18, 84¢-89¢; 20, 96¢-$1.01; 22, $1.22-$1.31; 24, $1.62-$1.75. Specification grade higher.

Extruded Round Rod: M, diam. in., ¼ to 0.311, 58¢; ½ to ¾, 46¢; 1¼ to 1.749, 43¢; 2½ to 5, 41¢. Other alloys higher.

Extruded Square, Hex. Bar: M, size across flats, in., ¼ to 0.311, 61¢; ½ to 0.749, 48¢; 1¼ to 1.749, 44¢; 2½ to 4, 42¢. Other alloys higher.

Extruded Solid Shapes, Rectangles: M, in weight per ft, for perimeters of less than size indicated, 0.10 to 0.11 lb. per ft. per. up to 3.5 in., 55¢; 0.22 to 0.25 lb per ft, per. up to 5.9 in., 51¢; 0.50 to 0.59 lb per ft, per. up to 8.6 in., 47¢; 1.8 to 2.59 lb per ft, per. up to 19.5 in., 44¢; 4 to 6 lb per ft, per. up to 28 in., 43¢. Other alloys higher.

Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057, ¼ to 5/16, $1.14; 5/16 to ⅜, $1.02; ½ to ⅝, 76¢; 1 to 2 in., 65¢. 0.065 to 0.082, ⅜ to 7/16, 85¢; ⅝ to ¾, 62¢; 1 to 2 in., 57¢. 0.165 to 0.219, ⅝ to ¾, 54.5¢; 1 to 2 in., 53¢; 3 to 4 in., 49¢. Other alloys higher.

Nickel and Monel

(Cents per lb, f.o.b. mill)

	Nickel	Monel
Sheets, cold-rolled	60	47
Strip, cold-rolled	66	50
Rods and shapes		
Hot-rolled	56	45
Cold-drawn	56	45
Angles, hot-rolled	56	45
Plates	58	46
Seamless tubes	89	80
Shot and blocks	..	40

Copper, Brass, Bronze

(Cents per pound, freight prepaid on 200 lb)

	Extruded Shapes	Rods	Sheets
Copper	36.78	....	37.18
Copper, hot-rolled	....	33.28	....
Copper, drawn	....	34.28	....
Low brass	38.07*	34.85	35.16
Yellow brass	36.76*	33.44	33.75
Red brass	38.55*	35.33	35.64
Naval brass	33.92	32.67	38.61
Leaded brass	....	28.30	....
Commercial bronze	39.29*	36.32	36.63
Manganese bronze	37.51	36.01	42.11
Phosphor bronze, 5 pct	57.80*	56.30	56.05
Muntz metal	33.47	32.22	36.66
Everdur, Herculoy, Olympic, etc.	40.43	40.67	41.73
Nickel silver, 10 pct	....	46.42	44.20
Architectural bronze	....	....	32.33

* Seamless tubing.

Scrap Metals

Brass Mill Scrap

(Cents per pound; add 1¢ per lb for shipments of 15,000 or more)

	Heavy	Turnings
Copper	21⅛	20⅝
Yellow brass	18	17⅛
Red brass	19¾	19
Commercial bronze	19¾	19
Manganese bronze	17¾	16⅞
Leaded brass rod ends	17¾	

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery.)

No. 1 copper wire	20.25
No. 2 copper wire	19.25
Light copper	18.25
Refinery brass	18.25*–18.50*

* Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer.)

No. 1 copper, wire	19.50
No. 2 copper, wire	18.50
Light copper	17.50
No. 1 composition	16.25
No. 1 comp. turnings	15.50
Rolled brass	12.00
Brass pipe	12.50
Radiators	13.25
Heavy yellow brass	11.50
Aluminum	
Mixed old cast	15.00
Mixed old clips	15.25
Mixed turnings, dry	13.00
Pots and pans	15.25
Low copper	17.50–18.00

Dealers' Scrap

(Dealer's buying prices, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	17¾—18¼
No. 2 heavy copper and wire	16¾—17¼
Light copper	15¾—16¼
Auto radiators (unsweated)	12 —12½
No. 1 composition	14¾—15¼
No. 1 composition turnings	14¼—14¾
Clean red car boxes	12½—12¾
Cocks and faucets	11¾—12¼
Mixed heavy yellow brass	9¼— 9¾
Old rolled brass	11½—11¾
Brass pipe	12 —12½
New soft brass clippings	13¼—14
Brass rod ends	11 —11½
No. 1 brass rod turnings	10¼—10¾

Aluminum

Alum. pistons and struts	8½— 9
Aluminum crankcases	10½—11
2S aluminum clippings	14½—15
Old sheet & utensils	10½—11
Borings and turnings	5½— 6
Misc. cast aluminum	10½—11
Dural clips (24S)	10½—11

Zinc

New zinc clippings	10½—11
Old zinc	8¼— 8¾
Zinc routings	4½— 5
Old die cast scrap	5 — 5½

Nickel and Monel

Pure nickel clippings	22 —23
Clean nickel turnings	17 —18
Nickel anodes	22 —23
Nickel rod ends	21 —22
New Monel clippings	15½—16½
Clean Monel turnings	11 —12
Old sheet Monel	13 —14
Old Monel castings	10 —11
Inconel clippings	12 —13
Nickel silver clippings, mixed	8 — 8½
Nickel silver turnings, mixed	7 — 7½

Lead

Soft scrap lead	18½—19
Battery plates (dry)	12¼—12½

Magnesium Alloys

Segregated solids	8 — 9
Castings	4½— 5½

Miscellaneous

Block tin	82 —84
No. 1 pewter	65 —67
No. 1 auto babbitt	51 —53
Mixed common babbitt	14¾—15¼
Solder joints	19¾—20¼
Siphon tops	50 —52
Small foundry type	20 —20½
Monotype	19 —19½
Lino. and stereotype	18 —18½
Electrotype	16½—17
New type shell cuttings	15 —15½
Hand picked type shells	6½— 7
Lino. and stereo dross	9½—10
Electro dross	6½— 7

IRON AND STEEL SCRAP

all grades

foundry
electric furnace
open hearth
blast furnace

for dependability

schlossberg

for service

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arket Static; Some Cast Grade Movement

York

• **Market conditions** were gen-
ly quiet this week with the ex-
tion of some cast grades in
falo and Birmingham. Ship-
ts continued to move as usual
mills will still take all the
d scrap they can get.

1 Birmingham No. 1 cupola
was up $2 a ton and is bring-
$70 while mixed yard cast goes
igh as $68 in that market. In
falo, clean auto cast and mixed
ola cast jumped $2 a ton also
now goes from $66 to $68 a

nly price movement downward
place in Pittsburgh where
road specialties dipped 25¢
tinuing a trend toward wiping
what some sources considered
e too much of a spread over
r grades.

he freight car shortage has
un to be felt in Detroit as it
been in Pittsburgh and Phila-
hia for the past few weeks.
y feel that this condition is
temporary and will taper off
rtly.

me sources in Pittsburgh and
ladelphia look for a softening
to hit the heavy melting mar-
as a result of German scrap
is on its way, but this feeling
little premature. U. S. Steel
ects to have their share from
many coming in at about 20,-
tons a month and it is likely
this rate will be achieved
l the beginning of next year,
even that tonnage is hardly
ugh to really produce a soften-
in the market.

•

TTSBURGH—In a quiet market only
oad specialties drifted lower. They
d 25¢, continuing the trend toward
g out what many considered to be
nuch of a spread over other grades.
mills reported a slight drop in ship-
s into the district. The car shortage
nues though it is not all laid to that.
& Laughlin's announcement that it
add 400,000 tons to rated ingot
ity was seen as reversing its tradi-
position as a scrap seller in normal
It is still some years away and by
various automotive plants will be
ating scrap that formerly went to
estern mills. Meanwhile, Allegheny Ludlum will be in the market for about 15,000 additional tons a month for new electric furnaces that should be running by the middle of 1949.

•

CHICAGO—Last week saw slightly increased activity in what has been a dull market. No significant price changes took place, but some buyers started placing larger orders. Railroad specialties continue mixed particularly in rails. It is believed that the No. 3 rail price has been artificially jacked up by speculatory buying. Other observers insist the reason for this price is that the buyers are sorting such shipments and acquiring some usable rails, or rails suitable for rerolling. Two Chicago mills were still out of the market on dealer scrap.

•

PHILADELPHIA—The heavy melting market was easier last week, and some reports have been received of certain mills backing away from new orders. At the same time there are instances of discontent with the slow shipment of yard scrap this fall, contributed to by the car shortage and the lowered intake into yards. Dealers have become more choosey about their receipts for bundling purposes since the mills started rejections of off-grade No. 2 bundles on a large scale. Some factors see the prospect of lower prices in the near future as foreign shipments into this market have been estimated at 20,000 tons a month and mills are building up their winter stockpile. So far, there are no price changes. The cast iron market is firm, as mills and foundries are actively in the market for cast.

•

CLEVELAND—Demand is strong and supply unchanged here and in the Valley. Mills are comfortable, and in fact, in better shape than they were last year at this time, and are apparently pretty well reconciled to the quality of the material. Mills are generally holding to the going prices, although probably every broker knows where he can get more money for tonnage than mills are willing to pay. Shipments are generally fair, rarely good. A valley consumer had 500 cars on track last week and promptly canceled all orders overdue, but put out new orders the next day. The trade has probably seen the best of the shipments this fall, and from here on, shipments will be on the down-grade. Foundry grades have strengthened somewhat and good cast is again at a premium.

•

DETROIT—Scrap pressures continue to mount here although prices remain at previous levels. With the automotive industry operating close to peak, scrap flow is reported to be very satisfactory except where a shortage of freight cars has interfered. Most sources regard this situation as temporary, however. Reports persist here that an out-of-town buyer is paying above going prices for low phos although the scrap is not being used to produce ingots for conversion. Cast iron grades are unchanged.

•

CINCINNATI—Superficially the market is unchanged, despite strong undercurrents. Very little material is moving into dealers' yards and shipments to consumers are slow. Cast is a little stronger, apparently gaining sympathetic strength from some of the Southern markets. As in other markets, major consumers are in better shape on their inventories than they were last year at this time. Prices are firm, particularly on the premium grades.

•

NEW YORK—Market conditions have fallen into a groove, pricewise, from the point of shipments and also as far as demand is concerned. Shipments continue to move in fair volume at going prices and mills will take all the good scrap they can get their hands on. Heavy melting is a little more in demand at mills as a result of some sad experiences with bundles in the past. Price resistance is developing in the chemical boring field. Some of the big consumers are in good supply and becoming indifferent to purchases which injects a weakening tone in the market.

•

BIRMINGHAM — The market undertone here is strong on all grades. Prices for cast iron continue to advance with No. 1 cupola cast bringing as high as $70 and mixed cast selling for as much as $68. Mixed cast predominates with little No. 1 cupola to be had. In the overall picture, scrap supplies are reported tighter.

•

BOSTON—The reopening of the Mystic Iron Works blast furnace at Everett is the big news here. The scrap markets have shown no change. Cast continues spotty and uncertain in price. Chemical borings are still selling for the high price of $38 to $39.

•

ST. LOUIS—Shipments of scrap iron to the St. Louis industrial district have been only in fair volume as this is the season when farmers are at work on their crops. Mills are said to have an inventory of 60 days ahead, and are buying offerings at present levels. Prices are unchanged.

•

BUFFALO—Cast scrap was stronger last week on moderate buying by smaller foundries. Gains of $1 to $2 a ton were chalked up for mixed yard material, which sold as high as $68 for carload lots. No. 1 heavy melting steel continued to move into consuming channels at $47 to $49 in this market.

•

SAN FRANCISCO—Luria Bros. & Co. has been appointed exclusive scrap buying agents for Geneva Steel Co. The business will be handled out of Luria Bros.' new San Francisco office headed by Stanley Claster, formerly assistant manager for Luria Bros. in St. Louis.

IRON AND STEEL SCRAP PRICES

PITTSBURGH

Per gross ton delivered to consumer:

No. 1 hvy. melting	$42.50 to	$43.00
RR. hvy. melting	43.50 to	44.00
No. 2 hvy. melting	42.50 to	43.00
RR. scrap rails	58.00 to	59.00
Rails 2 ft and under	62.00 to	62.50
No. 1 comp'd bundles	42.50 to	43.00
Hand bdld. new shts.	42.50 to	43.00
Hvy. axle turn.	45.50 to	46.50
Hvy. steel forge turn.	45.50 to	46.50
Mach. shop turn.	37.50 to	38.00
Shoveling turn.	39.50 to	40.00
Mixed bor. and turn.	37.50 to	38.00
Cast iron borings	39.50 to	40.00
No. 1 mach. cast	69.50 to	70.50
Mixed yard cast	63.50 to	64.50
Hvy. breakable cast.	61.00 to	62.00
Malleable	76.00 to	77.00
RR. knuck. and cup.	57.75 to	58.75
RR. coil springs	57.75 to	58.75
RR. leaf springs	57.75 to	58.75
Rolled steel wheels	57.75 to	58.75
Low phos.	49.00 to	50.00

CHICAGO

Per gross ton delivered to consumer:

No. 1 hvy. melting	$41.50 to	$42.00
No. 2 hvy. melting	41.50 to	42.00
No. 1 bundles	41.50 to	42.00
No. 2 dealers' bundles	41.50 to	42.00
Bundled mach. shop turn.	39.50 to	40.00
Galv. bundles	39.50 to	40.00
Mach. shop turn.	36.50 to	37.00
Short shov. turn.	38.50 to	39.00
Cast iron borings	37.50 to	38.00
Mix. borings and turn.	36.50 to	37.00
Low phos. hvy. forge	51.00 to	52.00
Low phos. plates	49.00 to	50.00
No. 1 RR. hvy. melt.	44.25 to	50.00
Rerolling rails	67.00 to	68.00
Miscellaneous rails	64.00 to	65.00
Angles & splice bars	56.50 to	57.50
Locomotive tires, cut	59.00 to	60.00
Cut bolster & side frames	51.00 to	52.00
Standard stl. car axles	79.00 to	80.00
No. 3 steel wheels	53.00 to	54.00
Couplers and knuckles	54.00 to	55.00
Rails, 2 ft and under	60.00 to	62.50
Malleable	83.00 to	84.00
No. 1 mach. cast.	70.00 to	72.00
No. 1 agricul. cast.	63.00 to	65.00
Heavy breakable cast.	62.00 to	63.00
RR. grate bars	62.00 to	64.00
Cast iron brake shoes	59.00 to	60.50
Cast iron car wheels	62.00 to	63.00

CINCINNATI

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	$40.00 to	$41.00
No. 2 hvy. melting	40.00 to	41.00
No. 1 bundles	40.00 to	41.00
No. 2 bundles	40.00 to	41.00
Mach. shop turn.	35.00 to	36.00
Shoveling turn.	37.00 to	38.00
Cast iron borings	36.00 to	37.00
Mixed bor. & turn.	35.00 to	36.00
Low phos., 18 in. under	48.00 to	49.00
No. 1 cupola cast.	65.00 to	66.00
Hvy breakable cast	59.00 to	60.00
Rails 18 in. and under	61.00 to	63.00
Rails random length	56.00 to	57.00
Drop broken	69.00 to	70.00

BOSTON

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$34.40 to	$36.40
No. 2 hvy. melting	....	34.40
Nos. 1 and 2 bundles	....	34.40
Bushelings	....	34.40
Shoveling turn.	....	31.40
Machine shop turn.	....	29.40
Mixed bor. and turn.	....	29.40
Cl'n cast chem. bor.	38.00 to	39.00
No. 1 machinery cast.	64.00 to	65.00
No. 2 machinery cast.	59.00 to	60.00
Heavy breakable cast.	53.50 to	54.50
Stove plate	56.00 to	57.00

DETROIT

Per gross ton, brokers' buying prices f.o.b. cars:

No. 1 hvy. melting	....	$38.00
No. 2 hvy. melting	....	38.00
No. 1 bundles	....	38.00
New busheling	....	38.00
Flashings	....	38.00
Mach. shop turn.	$32.50 to	33.00
Machinery cast	63.00 to	65.00
Mixed yard cast	57.00 to	58.00
Shoveling turn.	34.50 to	35.00
Cast iron borings	33.50 to	34.00
Mixed bor. & turn.	34.50 to	35.00
Low phos. plate	42.50 to	43.00
Heavy breakable cast.	53.00 to	57.00
Stove plate	57.00 to	58.00
Automotive cast.	64.00 to	66.00

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages.

PHILADELPHIA

Per gross ton delivered to consumer:

No. 1 hvy. melting	$44.50 to	$45.50
No. 2 hvy. melting	41.00 to	41.50
No. 1 bundles	44.50 to	45.50
No. 2 bundles	41.00 to	41.50
Mach. shop turn.	37.00 to	38.00
Shoveling turn.	38.50 to	39.00
Mixed bor. and turn.	36.50 to	37.50
Clean cast chemical bor.	43.00 to	45.00
No. 1 machinery cast.	66.00 to	67.00
No. 1 mixed yard cast.	61.00 to	62.00
Hvy. breakable cast.	62.00 to	63.00
Clean auto cast.	65.00 to	66.00
Hvy. axle forge turn.	46.00 to	47.00
Low phos. plate	50.00 to	51.00
Low phos. punchings	51.00 to	52.00
Low phos. bundles	48.00 to	49.00
RR. steel wheels	54.00 to	55.00
RR. coil springs	54.00 to	55.00
RR. malleable	80.00 to	82.00
Cast iron carwheels	68.00 to	70.00

ST. LOUIS

Per gross ton delivered to consumer:

No. 1 hvy. melting	$43.00 to	$44.00
No. 2 hvy. melting	40.00 to	41.00
Bundled sheets	40.00 to	41.00
Mach. shop turn.	35.00 to	36.00
Shoveling turnings	37.00 to	38.00
Locomotive tires, uncut	47.00 to	48.00
Mis. std. sec. rails	57.00 to	58.00
Steel angle bars	54.00 to	55.00
Rails 3 ft and under	60.00 to	62.00
RR. steel springs	49.00 to	50.00
Steel car axles	63.00 to	65.00
Brake shoes	59.00 to	60.00
Malleable	75.00 to	77.00
Cast iron car wheels	60.00 to	61.00
No. 1 machinery cast.	66.00 to	67.00
Hvy. breakable cast.	60.00 to	61.00

BIRMINGHAM

Per gross ton delivered to consumer:

No. 1 hvy. melting	....	$40.00
No. 2 hvy. melting	....	40.00
No. 2 bundles	....	40.00
No. 1 bunsheling	....	40.00
Long turnings	$32.00 to	33.00
Shoveling turnings	35.00 to	36.00
Cast iron borings	....	29.50
Bar crops and plate	44.00 to	45.00
Structural and plate	44.00 to	45.00
No. 1 cupola cast.	68.00 to	70.00
Stove plate	64.00 to	65.00
No. 1 RR. hvy. melt.	....	41.00
Steel axles	51.00 to	52.00
Scrap rails	44.00 to	45.00
Rerolling rails	65.00 to	67.00
Angles & splice bars	56.00 to	59.00
Rails 3 ft & under	52.00 to	55.00
Cast iron carwheels	57.00 to	58.00

YOUNGSTOWN

Per gross ton delivered to consumer:

No. 1 hvy. melting	$42.50 to	$43.00
No. 2 hvy. melting	42.50 to	43.00
Mach. shop turn.	37.50 to	38.00
Short shov. turn.	39.00 to	40.00
Cast iron borings	38.00 to	39.00
Low phos.	47.50 to	48.00

NEW YORK

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$38.50 to	$39.00
No. 2 hvy. melting	....	37.00
No. 2 bundles	....	37.00
Mach. shop turn.	31.50 to	32.00
Mixed bor. & turn.	31.50 to	32.00
Shoveling turnings	33.50 to	34.00
Machinery cast.	59.00 to	60.00
Mixed yard cast	57.00 to	58.50
Heavy breakable cast.	56.00 to	57.00
Charging box cast.	56.00 to	57.00
Unstrp. motor blks.	53.50 to	54.50
Cl'n cast chem. bor.	38.50 to	39.50

BUFFALO

Per gross ton delivered to consumer:

No. 1 hvy. melting	$47.00 to	$49.00
No. 2 hvy. melting	41.75 to	42.25
No. 1 bundles	41.75 to	42.25
No. 2 bundles	41.75 to	42.25
No. 1 busheling	41.75 to	42.25
Mach. shop turn.	36.75 to	37.25
Shoveling turn.	38.75 to	39.25
Cast iron borings	37.75 to	38.25
Mixed bor. and turn.	36.75 to	37.25
Clean auto. cast	66.00 to	68.00
Mixed cupola cast.	66.00 to	68.00
Stove plate	65.00 to	66.00
RR. malleable	70.00 to	75.00
Small indus. malleable	47.00 to	49.00
Low phos. plate	48.00 to	50.00
Scrap rails	58.00 to	60.00
Rails 3 ft & under	63.00 to	64.00
RR steel wheels	58.00 to	60.00
RR. coil & leaf spgs.	58.00 to	60.00
RR. knuckles & coup.	58.00 to	60.00

CLEVELAND

Per gross ton delivered to consumer:

No. 1 hvy. melting	$42.00 to	$42.50
No. 2 hvy. melting	42.00 to	42.50
No. 1 bundles	42.00 to	42.50
No. 1 busheling	42.00 to	42.50
Drop forge flashings	42.00 to	42.50
Mach. shop turn.	37.00 to	37.50
Shoveling turn.	38.50 to	39.50
Steel axle turn.	42.00 to	42.50
Cast iron borings	37.50 to	38.50
Mixed bor. & turn.	36.50 to	37.50
Low phos. 2 ft and under	47.00 to	47.50
No. 1 machinery cast.	73.00 to	75.00
Malleable	79.00 to	81.00
RR. cast.	76.00 to	78.00
Railroad grate bars	60.00 to	62.00
Stove plate	61.00 to	63.00
RR. hvy. melting	43.00 to	43.50
Rails 3 ft and under	63.50 to	64.50
Rails 18 in. and under	65.00 to	66.00

SAN FRANCISCO

Per gross ton, f.o.b. shipping point:

No. 1 hvy. melting	....	$27.50
No. 2 hvy. melting	....	27.50
No. 2 bales	....	27.50
No. 3 bales	....	24.50
Mach. shop turn.	....	18.00
Elec. fur. 1 ft under	$40.00 to	42.00
No. 1 cupola cast.	58.00 to	60.00
RR. hvy. melting	....	28.50
Rails	....	29.00

LOS ANGELES

Per gross ton, f.o.b. shipping point:

No. 1 hvy. melting	....	$27.50
No. 2 hvy. melting	....	27.50
No. 1 bales	....	27.50
No. 2 bales	....	27.50
No. 3 bales	....	24.50
Mach. shop turn.	....	20.00
Elec. fur. 1 ft under	$40.00 to	42.00
No. 1 cupola cast.	58.00 to	68.00
RR. hvy. melting	....	28.50

SEATTLE

Per gross ton delivered to consumer:

No. 1 & No. 2 hvy. melt.	$27.50 to	$30.00
Elec. fur. 1 ft and under	40.00 to	42.00
No. 1 cupola cast.	50.00 to	54.00
RR. hvy. melting	30.00 to	33.00

HAMILTON, ONT.

Per gross ton delivered to consumer:
Cast grades f.o.b. shipping point:

Heavy melting		$23.00*
No. 1 bundles		23.00*
No. 2 bundles		22.50*
Mechanical bundles		21.00*
Mixed steel scrap		19.00*
Mixed borings and turnings		17.00*
Rails, remelting		23.00*
Rails, rerolling		26.00*
Bushelings		17.50*
Bushelings, new fact, prop'd		21.00*
Bushelings, new fact, unprop'd		16.00*
Short steel turnings		17.00*
No. 1 cast	$48.00 to	50.00*
No. 2 cast	44.00 to	45.00*

*Ceiling Price

HOUSTON, TEXAS
READING, PA.
LEBANON, PA.
EW YORK, N. Y.
WHICH OFFICE, SIR?
DETROIT, MICH.
PITTSBURGH, PA.
PUEBLO, COLO.
ST. LOUIS, MO.
BIRMINGHAM, ALA.
BUFFALO, N. Y.
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Since 1889 Luria Brothers and Company, Inc. have pursued a policy of better service made possible by years of "know how" and personnel who have the desire to please.

The expansion of our organization, with offices located in 14 major cities, is in accordance with our policy to give better service to our customers.

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices . . .

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel: (cents per pound)	Nov. 2, 1948	Oct. 26, 1948	Oct. 5, 1948	Nov. 4, 1947
Hot-rolled sheets	3.26	3.26	3.26	2.80
Cold-rolled sheets	4.00	4.00	4.00	3.55
Galvanized sheets (10 ga)	4.40	4.40	4.40	3.95
Hot-rolled strip	3.265	3.265	3.265	2.80
Cold-rolled strip	4.063	4.063	4.063	3.55
Plates	3.42	3.42	3.42	2.95
Plates wrought iron	7.85	7.85	7.85	6.85
Stains C-R strip (No. 302)	33.25	33.25	33.25	30.50
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes	$6.80	$6.80	$6.80	$5.75
Tinplate, electro (0.50 lb)	6.00	6.00	6.00	5.05
Special coated mfg. ternes	5.90	5.90	5.90	4.90
Bars and Shapes: (cents per pound)				
Merchant bars	3.37	3.37	3.37	2.90
Cold-finished bars	3.995	3.995	3.995	3.55
Alloy bars	3.75	3.75	3.75	3.30
Structural shapes	3.25	3.25	3.25	2.80
Stainless bars (No. 302)	28.50	28.50	28.50	26.00
Wrought iron bars	9.50	9.50	9.50	7.15
Wire: (cents per pound)				
Bright wire	4.256	4.256	4.256	3.55
Rails: (dollars per 100 lb)				
Heavy rails	$3.20	$3.20	$3.20	$2.75
Light rails	3.55	3.55	3.55	3.10
Semifinished Steel: (dollars per net ton)				
Rerolling billets	$52.00	$52.00	$52.00	$45.00†
Slabs, rerolling	52.00	52.00	52.00	45.00†
Forging billets	61.00	61.00	61.00	55.00†
Alloy blooms, billets, slabs	63.00	63.00	63.00	66.00†
Wire rod and Skelp: (cents per pound)				
Wire rods	3.619	3.619	3.619	2.80
Skelp	3.25	3.25	3.25	2.60

† Gross ton

Pig Iron: (per gross ton)	Nov. 2, 1948	Oct. 26, 1948	Oct. 5, 1948	Nov. 4, 1947
No. 2, foundry, Phila.	$51.56	$51.56	$51.56	$41.36
No. 2, Valley furnace	46.50	46.50	45.00	36.50
No. 2, Southern Cin'ti	49.47	49.47	49.47	40.24
No. 2, Birmingham	43.38	43.38	43.38	34.88
No. 2, foundry, Chicago†	46.00	46.00	46.00	36.00
Basic del'd Philadelphia	50.76	50.76	50.76	40.86
Basic, Valley furnace	46.00	46.00	44.50	36.00
Malleable, Chicago†	46.50	46.50	46.50	36.50
Malleable, Valley	46.50	46.50	45.00	36.50
Charcoal, Chicago	73.78	73.78	73.78	56.04
Ferromanganese‡	161.71	161.71	161.71	145.00

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† The switching charge for delivery to foundries in the Chicago district is $1 per ton.

‡ Average of U. S. prices quoted on Ferroalloy page.

Scrap (per gross ton)	Nov. 2, 1948	Oct. 26, 1948	Oct. 5, 1948	Nov. 4, 1947
Heavy melt'g steel, P'gh.	$42.75	$42.75	$42.75	$42.50
Heavy melt'g steel, Phila.	45.00	45.00	45.00	42.50
Heavy melt'g steel, Ch'go	41.75	41.75	41.75	39.50
No. 1, hy. comp. sh't, Det.	38.00	38.00	38.00	34.75
Low phos. Young'n	47.75	47.75	47.75	46.25
No. 1, cast, Pittsburgh	70.00	70.00	70.00	48.50
No. 1, cast, Philadelphia	66.50	66.50	65.50	53.00
No. 1, cast, Chicago	71.00	71.00	69.50	52.50
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	$15.00	$15.00	$15.00	$12.50
Foundry coke, prompt	17.00	17.00	17.00	14.00
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electro, Conn.	23.50	23.50	23.50	21.50
Copper, Lake Conn.	23.625	23.625	23.625	21.625
Tin, Grade A, New York	$1.03	$1.03	$1.03	80.00
Zinc, East St. Louis	15.50	15.50	15.00	10.50
Lead, St. Louis	21.30	19.30	19.30	14.80
Aluminum, virgin	17.00	17.00	16.00	15.00
Nickel, electrolytic	42.90	42.90	42.90	37.67
Magnesium, ingot	20.50	20.50	20.50	20.50
Antimony, Laredo, Tex.	38.50	38.50	35.00	33.00

Composite Prices . . .

Starting with the issue of Apr. 22, 1943, the weighted finished steel index was revised for the years 1941, 1942, and 1943. See explanation of the change on p. 90 of the Apr. 22, 1943, issue. Index revised to a quarterly basis as of Nov. 16, 1944; for details see p. 98 of that issue. The finished steel composite price for the current quarter is an estimate based on finished steel shipments for the previous quarter. This figure will be revised when shipments for this quarter are compiled.

	FINISHED STEEL (Base Price)	PIG IRON	SCRAP STEEL
Nov. 2, 1948	3.75255¢ per lb.	$46.82 per gross ton	$43.16 per gross ton
One week ago	3.75255¢ per lb.	$46.82 per gross ton	$43.16 per gross ton
One month ago	3.75255¢ per lb.	$46.07 per gross ton	$43.16 per gross ton
One year ago	3.19541¢ per lb.	$36.96 per gross ton	$41.50 per gross ton

	FINISHED STEEL HIGH	FINISHED STEEL LOW	PIG IRON HIGH	PIG IRON LOW	SCRAP STEEL HIGH	SCRAP STEEL LOW
1948	3.75325¢ July 27	3.22566¢ Jan. 1	$46.82 Oct. 12	$39.58 Jan. 6	$43.16 July 27	$39.75 Mar. 9
1947	3.19541¢ Oct. 7	2.87118¢ Jan. 7	37.98 Dec. 30	30.14 Jan. 7	42.58 Oct. 28	29.50 May 20
1946	2.83599¢ Dec. 31	2.54490¢ Jan 1	30.14 Dec. 10	25.37 Jan. 1	31.17 Dec. 24	19.17 Jan. 1
1945	2.44104¢ Oct. 2	2.38444¢ Jan. 2	25.37 Oct. 23	23.61 Jan. 2	19.17 Jan. 2	18.92 May 22
1944	2.30837¢ Sept. 5	2.21189¢ Oct. 5	$23.61	$23.61	19.17 Jan. 11	15.76 Oct. 24
1943	2.29176¢	2.29176¢	23.61	23.61	$19.17	$19.17
1942	2.28249¢	2.28249¢	23.61	23.61	19.17	19.17
1941	2.43078¢	2.43078¢	$23.61 Mar. 20	$23.45 Jan. 2	$22.00 Jan. 7	$19.17 Apr. 10
1940	2.30467¢ Jan. 2	2.24107¢ Apr. 16	23.45 Dec. 23	22.61 Jan. 2	21.83 Dec. 30	16.04 Apr. 9
1939	2.35367¢ Jan. 3	2.26689¢ May 16	22.61 Sept. 19	20.61 Sept. 12	22.50 Oct. 3	14.08 May 16
1938	2.58414¢ Jan. 4	2.27207¢ Oct. 18	23.25 June 21	1961 July 6	15.00 Nov. 22	11.00 June 7
1937	2.58414¢ Mar. 9	2.32263¢ Jan. 4	23.25 Mar. 9	20.25 Feb. 16	21.92 Mar. 30	12.67 June [illegible]
1936	2.32263¢ Dec. 28	2.05200¢ Mar. 10	19.74 Nov. 24	18.73 Aug. 11	17.75 Dec. 21	12.67 June [illegible]
1935	2.07642¢ Oct. 1	2.06492¢ Jan. 8	18.84 Nov. 5	17.83 May 14	13.42 Dec. 10	10.33 Apr. 29
1934	2.15367¢ Apr. 24	1.95757¢ Jan. 2	17.90 May 1	16.90 Jan. 27	13.00 Mar. 13	9.50 Sept. 25
1933	1.95578¢ Oct. 3	1.75836¢ May 2	16.90 Dec. 5	13.56 Jan. 3	12.25 Aug. 8	6.75 Jan. [illegible]
1932	1.89196¢ July 5	1.83901¢ Mar. 1	14.81 Jan. 5	13.56 Dec. 6	8.50 Jan. 12	6.43 July 5
1931	1.99626¢ Jan. 13	1.86586¢ Dec. 29	15.90 Jan. 6	14.79 Dec. 15	11.33 Jan. 6	8.50 Dec. 29
1930	2.25488¢ Jan. 7	1.97319¢ Dec. 9	18.21 Jan. 7	15.90 Dec. 16	15.00 Feb. 18	11.25 Dec. [illegible]
1929	2.31773¢ May 28	2.26498¢ Oct. 29	18.71 May 14	18.21 Dec. 17	17.58 Jan. 29	14.08 Dec. 8

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipments. Index recapitulated in Aug. 28, 1941, issue.

Based on averages for basic iron at valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Based on No. 1 heavy melting steel scrap quotations to consumers at Pittsburgh, Philadelphia and Chicago.

Iron and Steel Prices . . .

Steel prices shown here are f.o.b. producing points in cents per pound unless otherwise indicated. Extras apply. (1) Commercial quality sheet grade; prices, 0.25¢ above base. (2) Commercial quality grade. (3) Widths up to 12-in. inclusive. (4) 0.25 carbon and less. (5) Cokes, 1.25 lb, deduct 20¢ per base box. (6) 18 gage and heavier. (7) For straight length material only from producers to fabricators. (8) Also shafting. For quantities of 40,000 lb and over. (9) Carload lot in manufacturing trade. (10) Hollowware enameling, gages 29 to 31 only. (11) Produced to dimensional tolerances in AISI Manual Sec. 6. (12) Slab prices subject to negotiation in most cases. (13) San Francisco only. (14) Los Angeles only. (15) San Francisco and Los Angeles only. (16) Seattle only. (17) Seattle and Los Angeles only.

PRODUCTS	Base prices at producing points apply to the sizes and grades produced in these areas														
	Pittsburgh	Chicago	Gary	Cleveland	Birmingham	Buffalo	Youngstown	Sparrows Point	Granite City	Middletown, Ohio		Detroit	Johnstown	Seattle, S. Fr'isco, LosAngeles	Fontana
GOTS Carbon forging	$50.00														
Alloy	$51.00						(per net ton)								
LLETS, BLOOMS, SLABS Carbon, rerolling[12]	$52.00				$52.00	$52.00		(per net ton)					$52.00		
Carbon forging billets	$61.00	$61.00	$61.00	$61.00	$61.00	$61.00	(per net ton)						$61.00		
Alloy	$63.00	$63.00				$63.00	(Bethlehem, Canton, Massillon = $63.00) (per net ton)								
PE SKELP	3.25						3.25				Warren =3.25				
IRE RODS	3.40 to 4.15	3.40 to 3.90		3.40	3.40		3.65	3.50			Worcester 3.70		3.40	4.05[13] 4.10[14]	
HEETS Hot-rolled[6]	3.25 to 3.30	3.25	3.25	3.25–3.30	3.25	3.25	3.25	3.25		Warren, Ashland =3.25		3.45		3.95[15]	5.65
Cold-rolled[1]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.20	4.00	Warren 4.00	4.20		Pittsbnrg, Cal. 4.95	
Galvanized (10 gage)	4.40	4.40	4.40		4.40			4.40	Canton =4.40	4.40	Ashland =4.40			5.15[15]	
Enameling (12 gage)	4.40	4.40	4.40	4.40			4.40		4.80	4.40		4.70			
Long ternes[2] (10 gage)	4.80		4.80							4.80					
RIP Hot-rolled[3]	3.25 to 3.30	3.25 to 3.30	3.25	3.25 to 3.30	3.25	3.25	3.25	3.25		3.25	Warren =3.25	3.45		4.00 to 4.25	5.90
Cold-rolled[4]	4.00	4.25		4.00	4.00	4.00	4.00	4.00		New Haven 4.50 Warren=4.00 to 4.25		4.20 to 4.50			7.10
INPLATE Cokes, 1.50 lb.[5] base box	$6.80	$6.80	$6.80		$6.90			$6.90	$7.00	Warren, Ohio =$6.80				Pittsburg, Cal.=$7.55	
Electrolytic 0.25, 0.50, 0.75 lb. box	Deduct $1.00. 80¢ and 60¢ respectively from 1.50 lb. coke base box price														
ERNES MFG., special coated	Deduct 90¢ from 1.50 lb. coke base box price														
LACKPLATE CANMAKING 55-70 lb, 75-95 lb, 100-128 lb	Deduct $1.60, $1.70 and $1.60 respectively from 1.50 lb. coke base box price														
LACKPLATE, h.e., 29 ga.[10]	4.75	4.75	4.75					4.85							
ARS Carbon Steel	3.35 to 3.55	3.35	3.35	3.35	3.35	3.35	3.35	3.35		3.35	Canton =3.35	3.55	3.35	4.05 to 4.10	5.30
Reinforcing (billet)[7]	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35			Canton =3.35		3.35	4.05 to 4.10	5.30
Cold-finished[8]	3.95 to 4.00	4.00	4.00	4.00		4.00	4.00					4.30			
Alloy, hot-rolled	3.75	3.75	3.75			3.75	3.75	Bethlehem, Canton, Massillon=3.75				4.05	3.75	4.80[14]	5.50
Alloy cold-drawn	4.65 to 4.75	4.65	4.65	4.65		4.65	4.65	Massillon=4.65			Worcester 4.95				
ATE Carbon steel[11]	3.40 to 3.60	3.40	3.40	3.40 to 3.60	3.40 Consh	3.45 ohocken	3.40 =3.95	3.45 Coatesville=3.75, Claymont=3.95 Geneva=3.40, Harrisburg=6.50				3.65	3.45	4.30[16]	5.80
Floor plates	4.55	4.55		4.55				Consh	ohocken	=4.55					
Alloy	4.40	4.40							Coatesville=5.10						
IAPES, Structural	3.25 to 3.30	3.25	3.25		3.25	3.30	Bethlehem=3.30, Geneva, Utah=3.25						3.30	3.85 to 4.30	5.75
ANUFACTURERS' WIRE[9] Bright	4.15 to 4.50	4.15 to 4.65		4.15	4.15		4.15	4.25	Duluth=4.15, Worcester=4.45				4.15	5.15[13]	
Spring (high carbon)	5.20	5.20		5.20				5.30	Worcester=5.50 New Haven, Trenton=5.50				5.20	Duluth=5.20-6.15	
LING, Steel sheet	4.05	4.05				4.05									

STAINLESS STEELS

Base prices, in cents per pound, f.o.b. producing point

Product	Chromium Nickel						Straight Chromium		
	301	302	303	304	316	347	410	416	430
Ingots, rerolling	12.75	13.50	15.00	14.50	22.75	20.00	11.25	13.75	11.50
Slabs, billets, rerolling	17.00	18.25	20.25	19.25	30.25	26.75	15.00	18.50	15.25
Forging discs, die blocks, rings	30.50	30.50	33.00	32.00	49.00	41.00	24.50	25.00	25.00
Billets, forging	24.25–26.50	24.25–26.50	26.25–28.75	25.50–27.75	39.00–42.75	32.75–35.75	19.50–21.50	20.00–21.75	20.00–21.75
Bars, wire, structurals	28.50	28.50	31.00	30.00	46.00	38.50	23.00	23.50	23.50
Plates	32.00	32.00	34.00	34.00	50.50	44.00	26.00	26.50	26.50
Sheets	37.50–40.75	37.50–40.75	39.50–43.00	39.50–43.00	53.00–57.25	50.00–54.00	33.00	33.50	35.50 .....
Strip, hot-rolled	24.25	25.75	30.00	27.75	46.00	38.75	21.25	28.00	21.75
Strip, cold-rolled	30.50–30.75	33.00–33.50	36.50–39.50	35.00–35.75	55.00–57.25	48.50–50.00	27.00	33.50	27.50 .....

ELECTRODES

Cents per lb, f.o.b. plant, threaded electrodes with nipples, unboxed

Diameter in in.	Length in in.	
Graphite		
17, 18, 20	60, 72	16.00¢
8 to 16	48, 60, 72	16.50¢
7	48, 60	17.75¢
6	48, 60	19.00¢
4, 5	40	19.50¢
3	40	20.50¢
2½	24, 30	21.00¢
2	24, 30	23.00¢
Carbon		
40	100, 110	7.50¢
35	65, 110	7.50¢
30	65, 84, 110	7.50¢
24	72 to 104	7.50¢
17 to 20	84, 90	7.50¢
14	60, 72	8.00¢
10, 12	60	8.25¢
8	60	8.50¢

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	90.5¢
18	4	1	—	5	$1.42
18	4	2	—	—	$1.025
1.5	4	1.5	8	—	65¢
6	4	2	6	—	69.5¢

High-carbon-chromium	52¢
Oil harden manganese	29¢
Special carbon	26.5¢
Extra carbon	22¢
Regular carbon	19¢

Warehouse prices on and east of Mississippi are 2½¢ per lb higher. West of Mississippi, 4½¢ higher.

ELECTRICAL SHEETS

Base, HR cut lengths, f.o.b. mill

	Cents per lb
Armature	5.45
Electrical	5.95
Motor	6.70 to 9.20
Dynamo	7.50 to 10.00
Transformer 72	8.05 to 11.80
Transformer 65	8.60 to 12.35
Transformer 58	9.30 to 13.05
Transformer 52	10.10

RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier, No. 1 O.H., per 100 lb	$3.20
Joint bars, 100 lb	4.25
Light rails (from billets) per 100 lb	3.55

	Base Price cents per lb
Track spikes	5.35
Axles	5.20
Screw spikes	8.00
Tie plates	4.05
Tie plates, Pittsburg, Calif.*	4.20
Track bolts, untreated	8.25
Track bolts, heat treated, to railroads	8.50

*Seattle, add 30¢.

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.00¢
0.41 to 0.60 carbon	5.50¢
0.61 to 0.80 carbon	6.10¢
0.81 to 1.05 carbon	8.05¢
1.06 to 1.35 carbon	10.35¢

Worcester, add 0.30¢.

CLAD STEEL

Base prices, cents per pound

Stainless clad	Plate	Sheet
No. 304, 20 pct, f.o.b.		
Coatesville, Pa.	*27.00	
Washington, Pa.	*26.50	*22.50
Claymont, Del.	*26.50	
Conshohocken, Pa.		*22.50
Nickel-clad		
10 pct f.o.b. Coatesville, Pa.	27.50	
Inconel-clad		
10 pct, f.o.b. Coatesville.	36.00	
Monel-clad		
10 pct, f.o.b. Coatesville.	29.00	
Alumnized steel sheets		
Hot dip, 20 gage, f.o.b. Butler, Pa.	....	9.25

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* Includes annealing and pickling, or sandblasting.

MERCHANT WIRE PRODUCTS

To the dealer, f.o.b. mill

	Base per 100 lb	*Pittsburg, Calif.*
Standard & coated nails*	103	123
Galvanized nails*	103	123
Woven wire fence†	109	132
Fence posts, carloads††	114	...
Single loop bale ties	106	130
Galvanized barbed wire**	123	143
Twisted barbless wire	123	...

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* Pgh., Chi., Duluth; Worcester, 6 columns higher. † 15½ gage and heavier. ** On 80 rod spools, in carloads. †† Duluth only.

	Base per 100 lb	*Pittsburg, Calif.*
Annealed fence wire‡	$4.80	$5.75
Annealed, galv. fencing‡	5.25	6.20
Cut nails, carloads‡‡	6.75	....

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‡ Add 30¢ at Worcester; 10¢ at Sparrows Pt.
‡‡ Less 20¢ to jobbers.

HIGH STRENGTH, LOW ALLOY STEELS

Mill base prices, cents per pound

Steel	Aldecor	Corten	Double Strength No. 1	Dyn-alloy	Hi Steel	Mayari R	Otis-coloy	Yoloy	NAX High Tensile
Producer	Republic	Carnegie-Illinois, Republic	Republic	Alan Wood	Inland	Bethlehem	Jones & Laughlin	Youngstown Sheet & Tube	Great Lakes Steel
Plates	5.20	5.20	5.20	5.30	5.20	5.30	5.20	5.20	5.65
Sheets									
Hot-rolled	4.95	4.95	4.95	5.25	4.95	4.95	4.95	4.95	5.25
Cold-rolled	6.05	6.05	6.05	....	6.05	6.05	6.05	6.05	6.35
Galvanized	....	6.75	....	....	....	6.75	....	....	....
Strip									
Hot-rolled	4.95	4.95	4.95	....	4.95	4.95	4.95	4.95	5.25
Cold-rolled	....	....	6.05	....	....	6.05	6.05	....	6.35
Shapes	....	4.95	....	....	4.95	5.05	4.95	....	....
Beams	....	4.95	....	....	....	....	....	....	....
Bars									
Hot-rolled	5.10	5.10	5.10	....	5.10	5.10	5.10	....	5.40
Bar shapes	....	5.10	....	....	5.10	5.10	5.10	....	....

PIPE AND TUBING

Base discounts, f.o.b. mills,
Base price, $200.00 per net ton.

ndard, threaded and coupled

el, buttweld*

	Black	*Galv.*
n.	43 to 41	22½ to 20
n.	46 to 44	26½ to 24
.	48½ to 46½	29½ to 27
-in.	49 to 47	29½ to 27½
-in.	49½ to 47½	30½ to 28
.	50 to 48	30½ to 28½
to 3-in.	50½ to 49½	31 to 29

el, lapweld

	Black	*Galv.*
.	39½	20
to 3 in.	39½	24
to 6 in.	46½ to 42	27 to 22½

el, seamless

	Black	*Galv.*
.	38½ to 27	18½ to 7½
& 3-in.	41½ to 35	21½ to 13
to 6-in.	43½ to 38½	23½ to 19

ought Iron, buttweld

	Black	*Galv.*
in.	+20½	+50
in.	+10½	+39
1¼-in.	+ 4½	+30
.	— 1½	+26½
.	— 2	+26

ought Iron, lapweld

	Black	*Galv.*
.	+ 7½	+34
to 3½-in.	+ 5	+29½
.	list	+23½
to 8-in.	+ 2	+25

ra Strong, plain ends

el, buttweld

	Black	*Galv.*
in.	42 to 40	23 to 20½
in.	46 to 44	27 to 24½
.	48 to 46	30 to 27½
-in.	48½ to 46½	30½ to 28
-in.	49 to 47	31 to 28½
.	49½ to 47½	31½ to 29
& 3-in.	50 to 48	32 to 29½

el, lapweld

	Black	*Galv.*
.	39½	21
& 3-in.	44½	26
to 6-in.	48 to 44	29½ to 25

el, seamless

	Black	*Galv.*
.	37½ to 32½	18½ to 14
& 3-in.	41½ to 36½	22½ to 18
& 6-in.	45	26½ to 26

ought Iron, buttweld

	Black	*Galv.*
n.	+16	+44
n.	+ 9½	+37
2-in.	— 1½	+26

ought Iron, lapweld

	Black	*Galv.*
	+ 4½	+30½
to 4-in.	— 5	+19
to 6-in.	— 1	+23½

or threads only, buttweld, lapweld and nless pipe, one point higher discount ver price) applies. For plain ends, weld, lapweld and seamless pipe 3-in. smaller, three points higher discount ver price) applies, while for lapweld seamless 3½-in. and larger four ts higher discount (lower price) ap- s. On buttweld and lapweld steel pipe, ers are granted a discount of 5 pct. l.c.l. shipments, prices are determined dding 25 pct and 30 pct and the car- freight rate to the base card.

F.o.b. Fontana prices average 17 ts lower discount (higher price) on k, 14 points on galvanized.

BOILER TUBES

amless steel and electric welded com- cial boiler tubes and locomotive tubes, mum wall. Prices per 100 ft at mill in oad lots, cut length 4 to 24 ft inclusive.

Gage	Seamless		Electric Weld	
BWG	H.R.	C.R.	H.R.	C.D.
13	19.18	22.56	18.60	21.89
12	25.79	30.33	25.02	29.41
12	28.68	33.76	27.82	32.74
11	35.85	42.20	34.78	40.94
10	44.51	52.35	43.17	50.78

CAST IRON WATER PIPE

	Per net ton
24-in., del'd Chicago	$106.70
24-in., del'd N. Y.	103.50 to 108.40
24-in., Birmingham	93.50
and larger, f.o.b. cars, San ancisco, Los Angeles, for all ll shipment; rail and water ipment less	120.30

ass "A" and gas pipe, $5 extra; 4-in. is $5 a ton above 6-in.

BOLTS, NUTS, RIVETS, SET SCREWS

Consumer Prices

(Bolts and nuts f.o.b. mill Pittsburgh, Cleveland, Birmingham or Chicago)

Base discount less case lots

Machine and Carriage Bolts

	Pct Off List
½ in. & smaller x 6 in. & shorter	35
9/16 & ⅝ in. x 6 in. & shorter	37
¾ in. & larger x 6 in. & shorter	34
All diam, longer than 6 in.	30
Lag, all diam over 6 in. longer	35
Lag, all diam x 6 in. & shorter	37
Plow bolts	47

Nuts, Cold Punched or Hot Pressed

(Hexagon or Square)

½ in. and smaller	35
9/16 to 1 in. inclusive	34
1⅛ to 1½ in. inclusive	32
1⅝ in. and larger	27

On above bolts and nuts, excepting plow bolts, additional allowance of 15 pct for full container quantities. There is an additional 5 pct allowance for carload shipments.

Semifin. Hexagon Nuts

	USS	SAE
7/16 in. and smaller	..	41
½ in. and smaller	38	..
½ in. through 1 in.	..	39
9/16 in. through 1 in.	37	..
1⅛ in. through 1½ in.	35	37
1⅝ in. and larger	28	..

In full case lots, 15 pct additional discount.

Stove Bolts

Packages, nuts separate	$61.75
In bulk	70.00

Large Rivets

	(½ in. and larger) *Base per 100 lb*
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	$6.75
F.o.b. Lebanon, Pa.	6.75

Small Rivets

	(7/16 in. and smaller) *Pct Off List*
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	48

Cap and Set Screws

(In packages)	*Pct Off List*
Hexagon head cap screws, coarse or fine thread, up to and incl. 1 in. x 6 in., SAE 1020, bright	46
⅝ to 1 in. x 6 in., SAE (1035), heat treated	35
Set screws, oval points	
Milled studs	19
Flat head cap screws, listed sizes	5
Fillister head cap, listed sizes	28

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill.

Effective CaF, Content:	*Base price per net ton*
70% or more	$37.00
60% or less	34.00

LAKE SUPERIOR ORES

(51.50% Fe, Natural Content, Delivered Lower Lake Ports)

	Per Gross Ton
Old range, bessemer	$6.60
Old range, nonbessemer	6.45
Mesabi, bessemer	6.35
Mesabi, nonbessemer	6.20
High phosphorus	6.20

Increases or decreases in freight rates, dock handling charges and taxes after Apr. 1, 1948, are to be added to above prices.

METAL POWDER

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.i.f. New York, ocean bags	7.9¢ to 9.0¢
Domestic sponge iron, 98+% Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+% Fe	19.5¢ to 39.5¢
Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 microns, 98%, 99.8%+ Fe	90.0¢ to $1.75
Aluminum	30.00¢
Antimony	51.17¢
Brass, 10 ton lots	27.25 to 37.25¢
Copper, electrolytic	33.625¢
Copper, reduced	34.25¢
Cadmium	$2.55
Chromium, electrolytic, 99% min.	$3.50
Lead	27.80¢
Manganese	55.00¢
Molybdenum, 99%	$2.65
Nickel, unannealed	66.00¢
Nickel, spherical, minus 30 mesh, unannealed	68.00¢
Silicon	34.00¢
Solder powder	8.5¢ plus metal cost
Stainless steel, 302	75.0¢
Tin	$1.155
Tungsten, 99%	$2.90
Zinc, 10 ton lots	17.75 to 22.25¢

COKE

	Net Ton
Furnace, beehive (f.o.b. oven) Connellsville, Pa.	$14.50 to $15.50
Foundry, beehive (f.o.b. oven) Connellsville, Pa.	$16.00 to $18.00
Foundry, Byproduct	
Buffalo	$22.65
Chicago, del'd	23.90
Chicago, f.o.b.	20.85
Detroit, f.o.b.	19.40
New England, del'd	22.75
Seaboard, N. J., f.o.b.	21.50
Philadelphia, f.o.b.	20.55
Swedeland, Pa., f.o.b.	20.50
Painesville, Ohio, f.o.b.	20.90
Erie, del'd	19.95
Cleveland, del'd	22.45
Cincinnati, del'd	21.40
St. Louis, del'd	20.98
Birmingham, del'd	18.66

REFRACTORIES

(F.o.b. Works)

Fire Clay Brick	*Carloads, Per* 1000
First quality, Pa., Md., Ky., Mo. (except Salina, Pa., add $5)	$80.00
No. 1 Ohio	74.00
Sec. quality, Pa., Md., Ky., Mo.	74.00
No. 2 Ohio	66.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50)	11.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$80.00
Childs, Pa.	84.00
Hays, Pa.	85.00
Chicago District	89.00
Western, Utah and Calif.	95.00
Super Duty, Hays, Pa., Athens, Tex.	85.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	$13.75 to 14.00
Silica cement, net ton, bulk, Hays, Pa.	16.00
Silica cement, net ton, bulk, Ensley, Ala.	15.00
Silica cement, net ton, bulk, Chicago District	14.75
Silica cement, net ton, bulk, Utah and Calif.	21.00

Chrome Brick

	Per Net Ton
Standard chemically bonded, Balt., Chester	$69.00

Magnesite Brick

Standard, Balt. and Chester	$91.00
Chemically bonded, Balt. and Chester	80.00

Grain Magnesite

	Std. ⅜-in. grains
Domestic, f.o.b. Balt. and Chester, in bulk, fines removed	$56.50
Domestic, f.o.b. Chewelah, Wash., in bulk with fines	$30.50 to 31.00
in sacks with fines	35.00 to 35.50

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk. Midwest, add 10¢; Missouri Valley, add 20¢	$12.25

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, per 100 lb. (Metropolitan area delivery, add 15¢ to base, except New York, add 20¢)

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4615 As-rolled	Hot-Rolled, A 4140-50 Ann.	Cold-Drawn, A 4615 As-rolled	Cold-Drawn, A 4140-50 Ann.
Philadelphia	$5.15-5.71	$6.31-6.57	$7.27-7.47	$5.35-5.66	$6.51	$5.37-5.52	$5.09-5.24	$5.35-5.57	$6.16-6.31	$9.14	$9.29	$10.54	$10.69
New York	5.40-5.98	6.28-6.43	7.26-7.73	5.58-5.88	6.48-6.73	5.78	5.32-5.58	5.53-5.63	6.18-6.38	9.17-9.53	9.32-9.68	10.40-10.77	10.55-10.92
Boston	5.48-5.64	6.39	7.56-7.69	5.54-5.89	6.75-6.79	5.74	5.39-5.54	5.48-5.59	6.24-6.34	9.40-9.44	9.55-9.59	10.84-10.94	10.92-11.09
Baltimore	5.28	6.18	7.16-7.38	5.34	....	5.53	5.33-5.39	5.39	6.13	....	....	....	....
Chicago	4.85-5.10	5.75-5.95	6.95-7.05	4.85-5.30	6.15	5.10	4.90	4.90	5.70	9.35	9.60	10.80	11.05
Milwaukee	5.02-5.07	5.92	7.12-7.22	5.02-5.37	6.32	5.22-5.27	5.07	5.07	5.87	9.15-9.17	9.32	10.52-10.57	10.67-10.72
Norfolk	5.75	....	....	....	....	6.00	6.00	6.00	....	....	....		...
Cleveland	4.98-5.20	5.75[1]-6.04[1]	7.18-7.24	5.02-5.65	6.70	5.35-5.54	5.16-5.42	5.15-5.34	5.70-5.95	9.14-9.66	9.29-9.89	11.05	11.30
Buffalo	4.85-5.10	5.75-5.85	7.55-7.70	5.55-5.56	6.35	5.45-5.46	5.10	5.15-5.20	5.90-6.05	9.05-9.35	9.40-9.50	10.75	20.90
Detroit	5.20-5.55	6.05-6.50	7.45	5.25-5.70	6.25-6.55	5.50-5.55	5.30-5.37	5.30-5.52	6.02-6.07	9.31-9.55	9.20-9.47	10.72-10.95	10.87-11.10
Cincinnati	5.14-5.36[8]	5.82-6.21[8]	6.97-7.45	5.25-5.62[8]	6.31	5.50-5.71[8]	5.30-5.47[8]	5.30-5.62[8]	6.06-6.17[8]	9.31-9.35	9.50-9.51	10.75-10.76	10.90-10.91
St. Louis	5.19	6.04-6.09	7.29-7.39	5.19-5.79	6.49	5.39-5.44	5.24	5.24	6.04	9.69	9.94	11.14	11.39
Pittsburgh	4.85-4.90	5.75[1]	6.95-7.05	5.00-5.35	5.95	5.05-5.25	4.90-5.15	4.90-5.10	5.65-5.80	9.35	9.60	10.40	10.55-10.80
St. Paul	5.41	6.31	7.30-7.61	5.41	....	5.66	5.46	5.46	6.26	9.91	10.10	11.36	11.61
Omaha	5.92	...	9.18	5.92	....	6.17	5.97	5.97	6.77	....	....	....	....
Birmingham	5.05[1]	6.36	6.45	5.05[11]	6.36	5.25[11]	5.00[11]	5.00[11]	6.66	....	....	....	...
Houston	6.40	....	8.60	6.75	....	6.35	6.20	6.40	7.60	9.80	9.65	10.75	10.95
Los Angeles	6.30-6.40	7.85[1]-7.90	7.95-8.55	6.60-6.66	9.35[5]	5.95-6.10	5.75-5.90	6.05	7.85[15]-7.95	10.35[15]	10.20[15]	11.75[15]	11.95[15]
San Francisco	5.95[8]	7.15[2]	8.05-8.55[2]	6.75[8]	8.25	6.30-7.68[8]	5.90-6.90	5.90	7.55	10.35[15]	10.20[15]	11.75[15]	11.95[15]
Portland	6.50[4]	8.00[2]	8.15[2] 8.45[3]	6.85[4]	....	6.30[4]	6.25[4]	6.25[4]	8.25[4]	....	10.45[15]	....	12.05[15]
Seattle	6.20[4]-6.30[4]	7.75[2]-7.85[2]	7.65-8.00	6.55[4]-6.65[4]	....	6.20-6.30	6.15-6.25	6.05[4]-6.15[4]	8.00[14]-8.10[14]	....	10.30[15]-10.40[15]	....	12.00[15]-12.05[15]
Salt Lake City	6.15-8.00	7.35	7.90-9.06	7.10-7.45	....	5.75-6.65	6.65-7.00	6.95-7.25	7.55-8.40	....	....	....	....

BASE QUANTITIES

Standard unless otherwise keyed on prices.

HOT-ROLLED: Sheets, strip, plates, shapes and bars, 400 to 1999 lb.

COLD-ROLLED: Sheets, 400 to 1999 lb; strip, extras on all quantities bars 1000 lb and over.

ALLOY BARS: 1000 to 1999 lb.

GALVANIZED SHEETS: 450 to 1499 lb.

EXCEPTIONS: (1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 lb and over; (6) 1000 lb and over; (7) 400 to 14,999 lb; (8) 400 lb and over; (9) 500 to 1999 lb; (10) 500 to 999 lb (11) 400 to 8999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 4999 lb; (16) 4000 lb and over; (17) up to 1999 lb.

PIG IRON PRICES

Dollars per gross ton. Delivered prices represent minimums. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES

Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	48.00	.. ..	.....	.....	.....
Birmingham	42.88	43.38	.....	.....	.....
Buffalo	47.00-48.00*	47.00-48.00*	47.50-48.50*	.....	.....
Chicago	46.00	46.00	46.50	47.00	.....
Cleveland	46.00	46.50	46.50	47.00	51.00
Duluth	46.00	46.00	46.50	47.00	.....
Erie	45.50	46.00	46.50	47.00	.....
Everett	.. ..	48.75	49.25	.....	.....
Granite City	47.90	48.40	48.90	.....	.....
Ironton, Utah	62.00	62.50	.....	.....	.....
Lone Star, Texas	.....	75.00†	.....	.....	.....
Neville Island	46.00	46.50	46.50	.....	.....
Provo	46.00	46.50	.....	.....	.....
Sharpsville	46.00	46.50	46.50	47.00	.....
Steelton	48.00	48.50	49.00	49.50	54.00
Struthers, Ohio	46.00	.....	.....	.....	.....
Swedeland	50.00	50.50	51.00	51.50	.....
Toledo	45.50	46.00	46.50	47.00	.....
Troy, N. Y.	.....	.....	.....	.....	54.00
Youngstown	46.00	46.50	46.50	.....	.....

DELIVERED PRICES† (BASE GRADES)

Consuming Point	Producing Point	Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Boston	Everett	$0.50 Arb.	.....	48.75	49.25	.....	...
Boston	Steelton	6.27	54.27	54.77	55.27	55.77	60.27
Brooklyn	Bethlehem	3.90	51.90	.....	.....	.....	.....
Cincinnati	Birmingham	6.09	48.97	49.47	.....	.....	.....
Jersey City	Bethlehem	2.39	50.39	.....	.....	.....	.....
Los Angeles	Provo	6.93	52.93	53.43	.....	.....	.....
Mansfield	Cleveland-Toledo	3.03	49.03-48.53	49.53-49.03	49.53	50.03	54.03
Philadelphia	Bethlehem	2.21	50.21	.....	.....	.....	.....
Philadelphia	Swedeland	1.31	51.31	51.81	52.31	52.81	.....
Philadelphia	Steelton	2.81	50.81	51.31	51.81	52.31	56.8
San Francisco	Provo	6.93	52.93	53.43	.....	.....	.....
Seattle	Provo	6.93	52.93	53.43	.....	.....	.....
St. Louis	Granite City	0.75 Arb.	48.65	49.15	49.65	.....	.....

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* Republic Steel Corp. price: Basis: pig iron at Buffalo set by average price of No. 1 hvy. mlt. steel scrap at Buffalo as show in last week's issue of THE IRON AGE. Price is effective until next Sunday midnight.

† Low Phos, Southern Grade.

Producing point prices are subject to switching charges; silicon differential (not to exceed 50¢ per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct); phosphorus differentials, a reduction of 38¢ per ton for phosphorus content of 0.70 pct and over; manganese differentials, a charge not to exceed 50¢ per ton for each 0.50 pct manganese content in excess of 1.00 pct. $2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and $1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.00 to 6.50 pct. C/L per g.t., f.o.b. Jackson, Ohio —$56.50; f.o.b. Buffalo $60.75. Add $1.25 per ton for each additional 0.50 pct Si. up to 12 pct. Add 50¢ per ton for each 0.50 pct Mn over 1.00 pct. Add $1.00 per ton for pct or more P. Bessemer ferrosilicon pri are $1.00 per ton above silvery iron prices comparable analysis.

Charcoal pig iron base price for low pho phorus $66.00 per gross ton, f.o.b. Lysle Tenn. Delivered Chicago, $73.78. High pho phorus charcoal pig iron is not being pr duced.

romanganese

8-82% Mn, Maximum contract base e, gross ton, lump size.

b. Birmingham	$162
b. Niagara Falls, Alloy, W. Va., Welnd, Ont.	$160
b. Johnstown, Pa.	$162
b. Sheridan, Pa.	$160
b. Rockwood, Tenn.	$165
. Etna, Pa.	$163

.00 for each 1% above 82% Mn; alty, $2.00 for each 1% below 78%. riquets—Cents per pound of briquet. vered, 66% contained Mn.

load, bulk	10.0
lots	11.6
s ton lots	12.5

egeleisen

ontract prices, gross ton, lump, f.o.b.

	16-19% Mn 3% max. Si	19-21% Mn 3% max. Si
merton, Pa..	$61.00	$62.00
. or Chicago	65.00	66.00

ganese Metal

ontract basis, 2 in. x down, cents per nd of metal, delivered.

6% min. Mn, 0.2% max. C, 1% max. 2% max. Fe.

load, packed	35.5
lots	37.0

ctrolytic Manganese

.o.b. Knoxville, Tenn., freight allowed of Mississippi, cents per pound.

loads	32
lots	34
s ton lots	36

-Carbon Ferromanganese

ontract price, cents per pound Mn coned, lump size, delivered.

	Carloads	Ton	Less
% max. C. 0.06%			
, 90% Mn.	25.25	27.10	28.30
% max. C	24.75	26.60	27.80
% max. C	24.25	26.10	27.30
% max. C	23.75	25.60	26.80
% max. C	23.25	25.10	26.30
% max. C, 00% max. Si	20.25	22.10	23.30

comanganese

ontract basis, lump size, cents per nd of metal, delivered, 65-68% Mn, 0% Si, 1.5%, max. C.

oad bulk	8.60
lots	10.25
uet, contract basis, carlots, bulk livered, per lb of briquet	10.0
lots	11.6
ton lots	12.5

ery Iron (electric furnace)

14.01 to 14.50 pct., f.o.b. Keokuk, a, openhearth $81.00, foundry, $82.00; 75 f.o.b. Niagara Falls; Electric fur- silvery iron is not being produced at son. Add $1.00 per ton for each adnal 0.50% Si up to and including Add $1.00 for each 0.50 pct Mn over t.

on Metal

ontract price, cents per pound coned Si, lump size, delivered, for ton lots ed.

Si, 2% Fe	20.70
Si, 1% Fe	21.10

on Briquets

ntract price, cents per pound of et, bulk, delivered, 40% Si, 1 lb Si ets.

oad, bulk	5.90
lots	7.50
ton lots	8.40

tric Ferrosilicon

ntract price, cents per pound cond Si, lump size, bulk, in carloads, ered.

Si	17.50
Si	10.50
Si	13.00
Si	14.65
% Si	16.50

um Metal

stern zone contract prices, cents per d of metal, delivered.

	Cast	Turnings	Distilled
ots	$2.05	$2.95	$3.75
ton lots	2.40	3.30	4.55

Ferrochrome (65-72% Cr, 2% max. Si)

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered.

0.06% C	28.75
0.10% C	28.25
0.15% C	28.00
0.20% C	27.75
0.50% C	27.50
1.00% C	27.25
2.00% C	27.00
65-69% Cr, 4-9% C	20.50
62-66% Cr, 4-6% C, 6-9% Si	21.35

Briquets — Contract price, cents per pound of briquet, delivered, 60% chromium.

Carload, bulk	13.75
Ton lots	15.25
Less ton lots	16.15

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

S. M. Ferrochrome

Contract price, cents per pound chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carload	21.60
Ton lots	23.75
Less ton lots	25.25

Low carbon type: 62-66% Cr, 4-6% Si. 4-6% Mn, 1.25% max. C.

Carload	27.75
Ton lots	30.05
Less ton lots	31.85

Chromium Metal

Contract prices, cents per lb. chromium contained packed, delivered, ton lots. 97% min. Cr. 1% max. Fe.

0.20% max. C	1.09
0.50% max. C	1.05
9.00% min. C	1.04

Calcium—Silicon

Contract price per lb of alloy, lump, delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe.

Carloads	17.90
Ton lots	21.00
Less ton lots	22.50

Calcium—Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	19.25
Ton lots	21.55
Less ton lots	22.55

CMSZ

Contract price, cents per pound of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50-56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.

Ton lots	19.75
Less ton lots	21.00

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Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max, St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn. V-7: 28-32% Cr, 15-21% Si, 14-16% Mn.

Ton lots	15.75¢
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Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 56%, Ti 9%, Ca 5%.

Ton lots and carload packed	18.00¢
Less ton lots	19.50¢

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Contract price, cents per pound of alloy, delivered. 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.

Ton lots	17.25
Less ton lots	18.50

Other Ferroalloys

Ferrotungsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered	$2.25
Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained, V.	
Openhearth	$2.90
Crucible	3.00
High speed steel (Primos)	3.10
Vanadium pentoxide, 88-92% V_2O_5 contract basis, per pound Contained V_2O_5	$1.20
Ferrocolumbium, 50-60% contract basis, delivered, per pound contained Cb.	
Ton lots	$2.75
Less ton lots	$2.80
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Washington, Pa., per pound contained Mo.	95¢
Calcium molybdate, 45-50%, f.o.b. Langeloth, Washington, Pa., per pound contained Mo.	80¢
Molybdenum oxide briquets, f.o.b. Langeloth and Washington, Pa., per pound contained Mo.	80¢
Molybdenum oxide in bags, f.o.b. Langeloth and Washington, Pa., per pound contained Mo.	80¢
Ferrotitanium, 40-45%, 0.10% C max., f.o.b. Niagara Falls, N. Y., ton lots, per pound contained Ti	$1.23
Ferrotitanium, 20-25%, 0.10% C max., ton lots, per pound contained Ti	$1.40
Less ton lots	1.45
High carbon ferrotitanium, 15-20%, 6-8% C, contract basis, f.o.b. Niagara Falls, freight allowed, carloads, per net ton	$160.00
Ferrophosphorus, electrolytic, 23-26%, carlots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton	$65.00
10 tons to less carload	75.00
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	21.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per pound of alloy.	
Carload, bulk	6.60¢
Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	8.40¢
Ton lots	9.30¢
Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk	11.00
Ton lots, packed	11.25
Less ton lots	11.75

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Contract prices per pound of alloy, delivered.

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D.	
Ton lot	$1.20
Manganese—Boron 75.00% Mn. 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. X D, delivered.	
Ton lots	$1.67
Less ton lots	1.79
Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.	
Less ton lots	$1.80
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Ton lots	45.00¢
Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.	
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No. 6	63¢
No. 79	45¢
Bortam, f.o.b. Niagara Falls	
Ton lots, per pound	45¢
Less ton lots, per pound	50¢
Carbortam, f.o.b. Suspension Bridge, N. Y., freight allowed, Ti 15-18%, B 1.00-1.50%, Si 2.5-3.0%, Al 1.0-2.0%.	
Ton lots, per pound	8.625¢
Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B	$6.25

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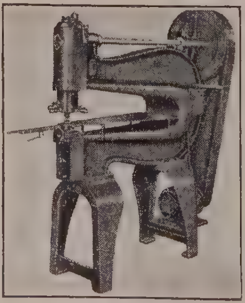

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Solutions to Management Problems

Cleveland

• • • **Solutions to the** problems of how to bring closer working relationships and understanding between management and general personnel were presented in two talks by B. F. McClancy, general manager of the Associated Industries, Cleveland, to the Dallas Personnel Conference, sponsored by the Dallas Personnel Assn. and Southern Methodist University.

B. F. McCLANCY

Listing 11 factors in building the kind of favorable industrial climate in a plant that extends to the community as a whole, as well as establishing understanding and harmony between management and all of the echelons under them, Mr. McClancy pointed out that these steps must be taken before consideration is given to publicity or company promotion as such, because, as he put it, "Skillful publicity cannot cover over bad management or lack of integrity on the part of any company. A favorable industrial climate can only be created when management is not only honest with employees and neighbors, but with itself."

Briefly, McClancy's 11 points are:

(1) Everything published by a company in whatever form must be truthful;

(2) In establishing communication between top management and supervisory personnel, executive training courses should be instituted to include every executive and supervisor;

(3) Employee attitude and opinion surveys should be made regularly;

(4) Supervisory personnel should be kept in touch with developments in the field of industrial relations generally, and the work of their own company in particular, through a newsletter or similar medium;

(5) Messages from the company's president on economics, business or whatever, can be a constructive feature of the plant's house organ;

(6) Timely letters on the company's position with regard to labor legislation or current problems are productive when sent directly to the employees' homes;

(7) Plant tours under well-trained guides are an effective means for getting across a company's economic story and establishing the facts of good working conditions;

(8) Foreman training based on the needs and

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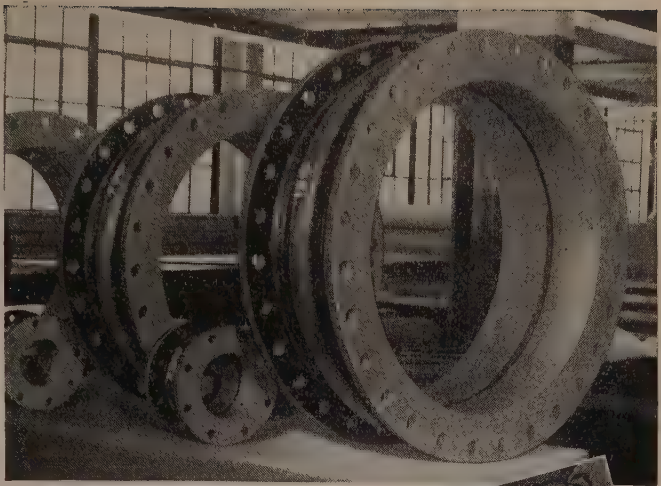

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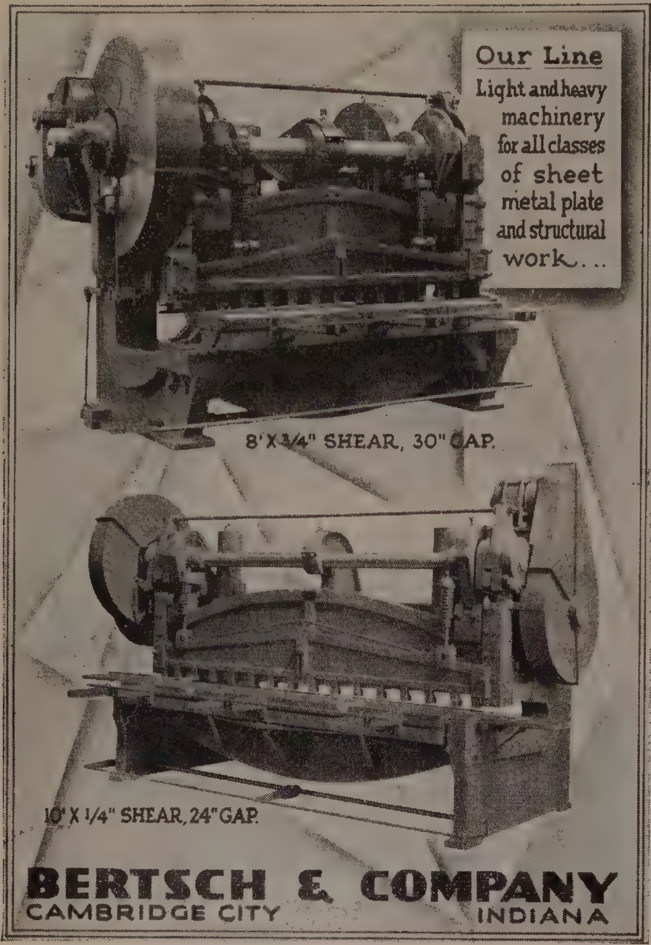
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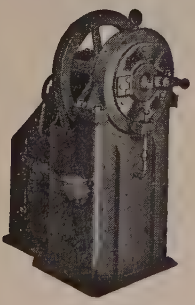

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requests of the foremen themselves are most successful;

(9) A suggestion system that works should be instituted;

(10) Merit rating systems should be set up both for hourly and salaried employees and executives;

(11) A grievance procedure should be set up for all workers, union and non-union, and efforts should be made to settle grievances at the first step.

To close the gap between supervisor and worker, Mr. McClancy suggested a two-pronged solution. First, he said, supervisory personnel must be trained to become part of a solid management team and to provide constructive leadership. Then workers must be educated to identify themselves with the company and take pride in it.

Training for supervisors to accomplish this purpose involves these six important steps, Mr. McClancy said:

(1) Giving them the symbols of office—a desk, a telephone listing, and the like;

(2) Training in leadership that shows mechanical efficiency is only about 10 pct of a supervisor's job;

(3) Keeping them informed on current trends in industrial relations and providing specific information on company problems;

(4) Advising them on all state and national labor legislation;

(5) Practical instruction in collective bargaining, including sessions spent actually sitting in on company negotiations;

(6) Training in all actual plant operations, from the receiving room to the finished product and methods of delivery to the customers.

"After the completion of this double educational job," Mr. McClancy said, "management will find that informed employees in all categories will understand a company's motives and will be overwhelmingly in agreement with them. And this agreement and understanding will automatically help in closing the gap between the supervisors and the workers."

European Steel Output Improving

London

• • • **The average** monthly production of steel in Europe for the first 6 months of this year was 27 pct higher than the average monthly total for production in 1947, according to figures reported to the steel committee of the United Nations Economic Commission for Europe.

The reports cover production in Austria, Belgium, Czechoslovakia, France, Hungary, Italy, Luxembourg, Poland, Sweden, the United Kingdom, the Bizone and French Zone of Germany and the Saar. This considerable increase in European steel production has been reported to the committee in private session in Geneva.

Production during the first 6 months amounted to some 53 pct of the anticipated yearly production reported to the Steel Committee at the beginning of this year. Since production is still rising in many

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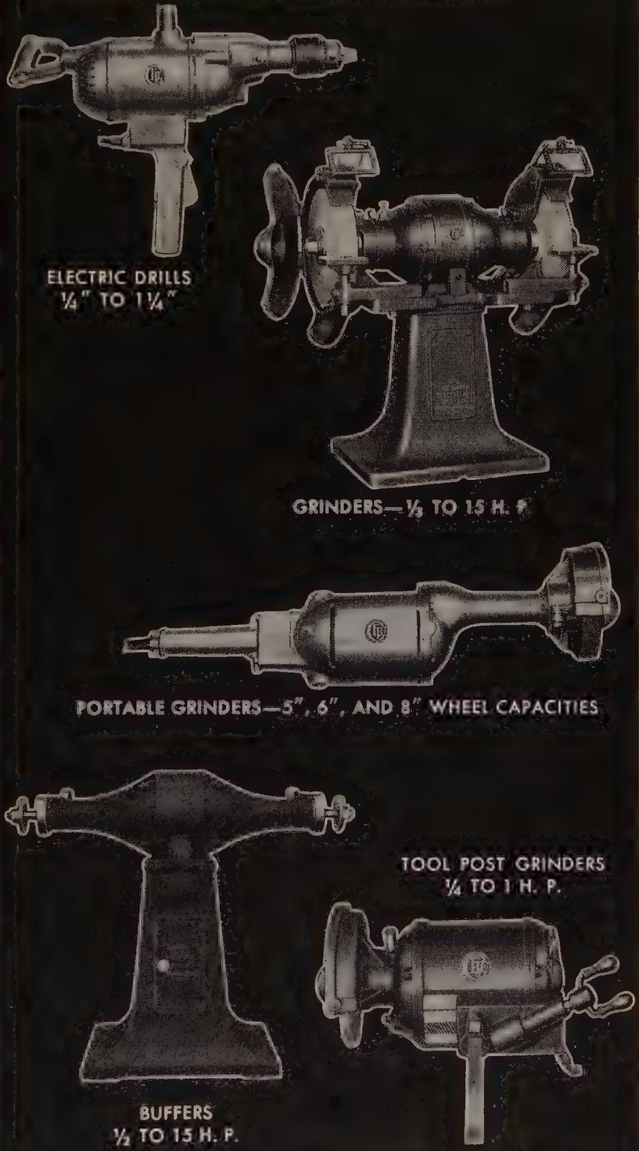

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countries, it can be estimated that the production for the whole year will be from 6 to 10 pct above that anticipated.

Barring unexpected developments, this means that the countries mentioned above will reach a 1948 production total in the neighborhood of 45 million tons of steel, instead of the 41.5 million tons anticipated, or some 11 million tons more than in 1947.

It is widely admitted that part of the credit for this increase can be attributed to the work of the ECE Steel and Coal Committees; it is too early, however, to assess this part accurately. It was in the ECE committee that the agreement was reached whereby non-steel producing countries sacrificed certain fuels for their domestic use in order that they might be allocated to steel-producing countries for increasing steel production. Another factor behind this increased steel output arises from the co-operation of the Bizone in Germany in meeting the request of the Steel Committee for increased exports of the type of coke urgently needed for steelmaking.

The committee has decided that the principles used in recommending metallurgical fuels allocations for the third and fourth quarters of this year should continue to be applied "until further notice" in 1949.

The existing formula has for its starting point the achievement of "maximum attainable pig-iron production." This defined level for the various producing countries is multiplied by an agreed average ratio of coke requirements for pig-iron output, thus giving coke requirements for maximum pig-iron production.

Against those coke requirements is applied the known coke availabilities of the respective countries (from national production, bilateral agreements, and frozen allocations of German coke as recommended for the first quarter of 1948). The difference between the established coke requirements of a given country and its known coke availabilities represents "unused capacity."

Any surplus of coke export availabilities over and above those of the first quarter of 1948 are and will, until further notice, be allocated in accordance with this unused capacity.

The United States representative made a statement to the Committee on the amount of metallurgical coke (including foundry coke) which, according to latest estimates, will be made available in the first and second quarters of 1949 from the Bizone of Germany to all countries, including Austria, but excluding other parts of Germany.

These figures, based on expected daily output in the Bizone, indicate possible 22.7 pct and 25.8 pct increases for the first and second quarters of 1949 respectively, over the estimates for the third quarter of 1948. These fuel increases would in turn permit a considerable increase in European steel production.

The report of the committee's scrap panel was considered by the committee. The committee "took note, with appreciation," of the report of the panel's visit to the United Kingdom and France, and expressed its gratitude for the facilities afforded to the panel by the authorities of those two countries. In view of the absence of declared scrap export

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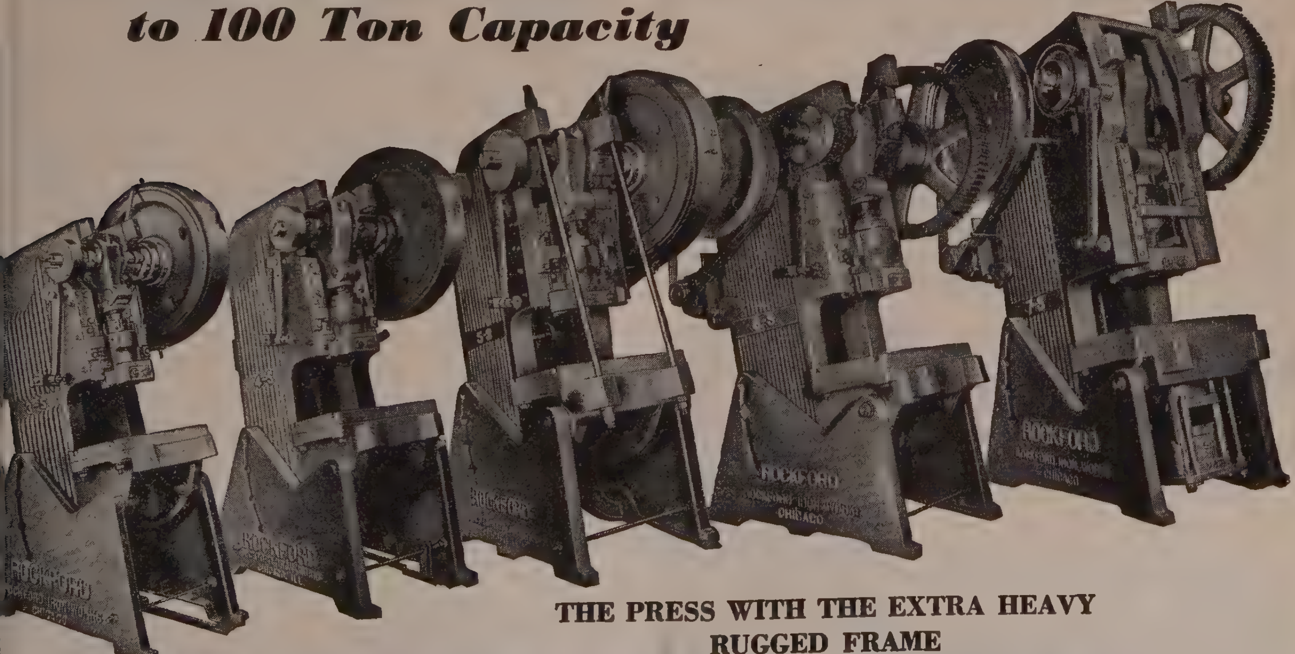

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availabilities from the occupation zones of Germany, the committee took no action on the question of German scrap.

According to a secretariat survey of the European scrap situation, presented to the session and approved by the committee, Europe will "probably become self-sufficient, so far as scrap was concerned, once the present plans for the development of the pig iron industry had been realized. Also, that it was most likely that in 2 or 3 years' time Europe would have once more reached her prewar percentages of scrap consumption by the various branches of the iron and steel industry."

The Steel committee was "generally agreed" that the European supply position in refractories had "improved," this being partly a reflection of the work accomplished so far by the ECE's working party on refractory materials." Nevertheless, the committee noted that there is still "an important deficit in certain countries, particularly of silica bricks." The United States representative, speaking for the Bizone occupation authorities, stated that in the Bizone the production of silica bricks has reached a level of 50 pct above that of the earlier part of the year.

A proposal was made that the working party on refractories should be invited by the steel committee to consider the possibility of allocating silica brick export surpluses in the Bizone. This proposal was forwarded by the steel committee to the working party on refractories.

The committee's table of rich iron ore requirements and export availabilities was modified in accordance with latest information. Representatives of the main importing countries agreed that a deficit of some 15 pct of their requirements in rich iron ores was to be expected in 1949. Representatives from the main exporting countries did not see any means of increasing export availabilities in 1949.

Awarded Industrial Research Medal

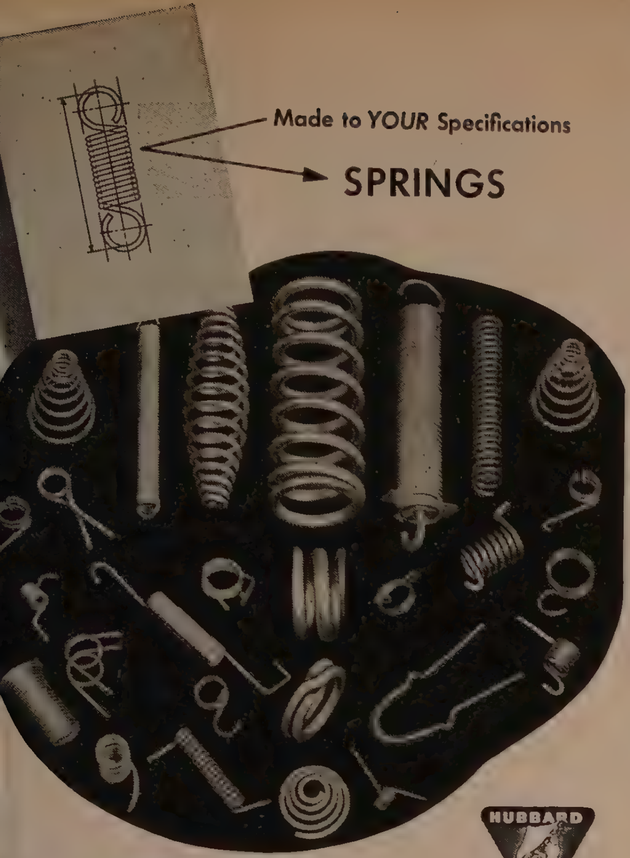
New York

• • • **Dr. Vannevar Bush,** until recently chairman of the research and development board of the National Military Establishment, has been awarded the 1949 medal of the Industrial Research Institute, Inc., according to Elmer W. Engstrom, president of the institute and vice-president in charge of research for RCA Laboratories.

Dr. Bush, who resigned his post with the Research and Development Board to devote more time to the presidency of the Carnegie Institution of Washington, served as director of the Office of Scientific Research and Development from the time of its establishment in 1940 throughout the war years.

The Industrial Research Institute medal, established in 1945, is given for outstanding accomplishment in the management field of industrial research.

The institute was organized in 1938 under the auspices of the National Research Council. It has a membership of more than 100 companies, with research staffs numbering more than 25,000 persons. Among its broad objectives is the promotion through its members of more economical and effective techniques of organization, administration and operation of industrial research.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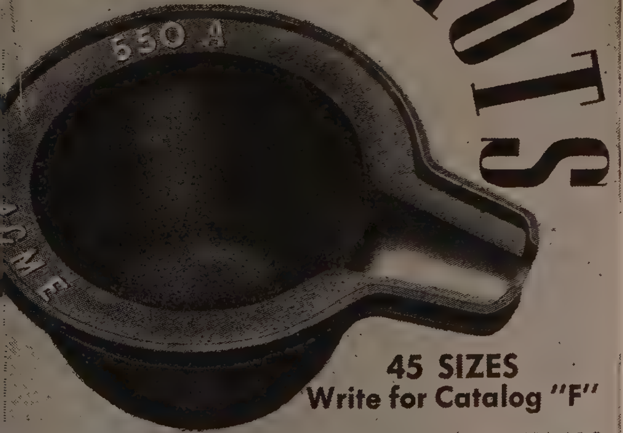

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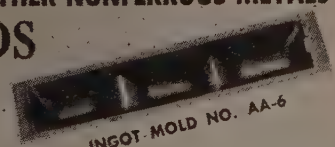

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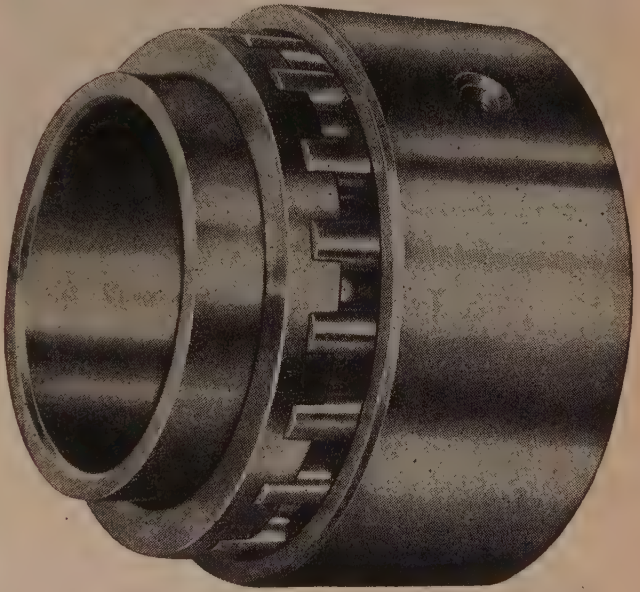

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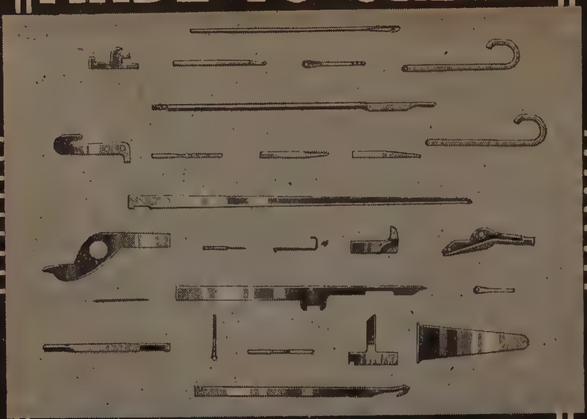

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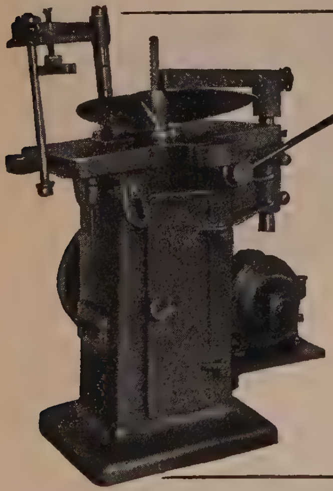

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Navy Aircraft Carriers Get Bigger

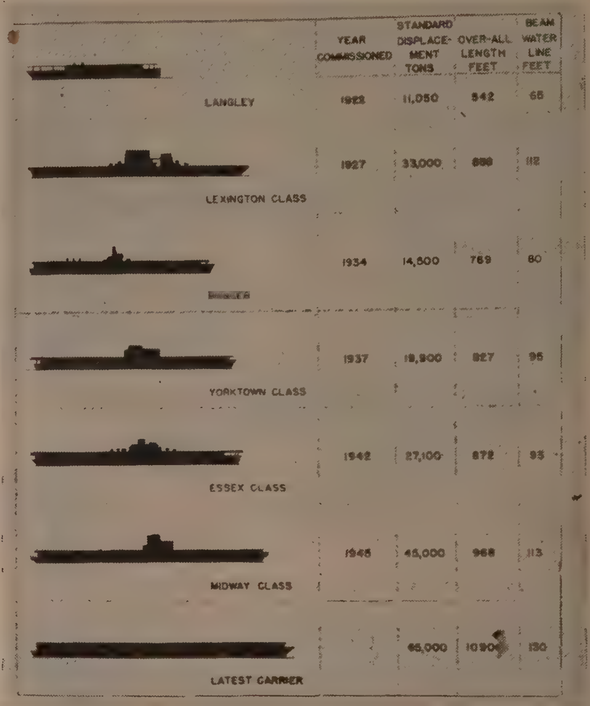
Washington

• • • U. S. Navy **aircraft** carriers are consistently progressing to larger and heavier ships in ratio to the increased size and weight of the Naval carrier aircraft.

The first carrier to be constructed as such from the keel up was the U. S. S. *Ranger*. The *Ranger*, which was built by the Newport News Shipbuilding & Drydock Co. at Newport News, Va., was commissioned in June, 1934.

Previous carriers had been converted from other types such as the *Lexington* class ships which were built on battle cruiser hulls. The new CVA-58, a 65,000-ton carrier, will be made by the same shipyard that had previously built the *Ranger*.

Following is a composite silhouette of the classes of U. S. Naval carriers in progression to the current models:



Carrier Progression

Republic Has Good Safety Record

Cleveland

• • • **The Republic Steel Corp.** has achieved an outstanding safety record in the annual metals section safety contest sponsored by the National Safety Council, according to a company official. In all, 35 Republic plants took part in the contest, 25 of them placing in their divisions or winning reduction awards.

Republic plants captured 8 out of 27 possible places in 9 divisions of the contest while in two other divisions 7 Republic plants were among 28 having perfect safety records to tie for first places. A total of 31 plants of various companies throughout the country were competing in the divisions in which Republic plants are eligible.

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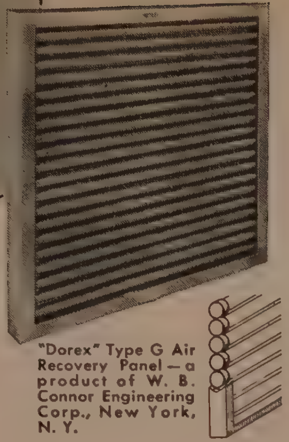

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he new field of Air Recovery, rex" Air Recovery Panels have nd wide acceptance. H & K forated Metals form the tubes hold activated carbon gran-. By using these panels, air eady conditioned is restored to original freshness, greatly in-asing efficiency and lowering costs resent air conditioning, heating cooling systems. "H & K Perforated" is more satisfactory than other types, says the manufacturer, due to "ease of fabrication, longer life and resistance to corrosion".

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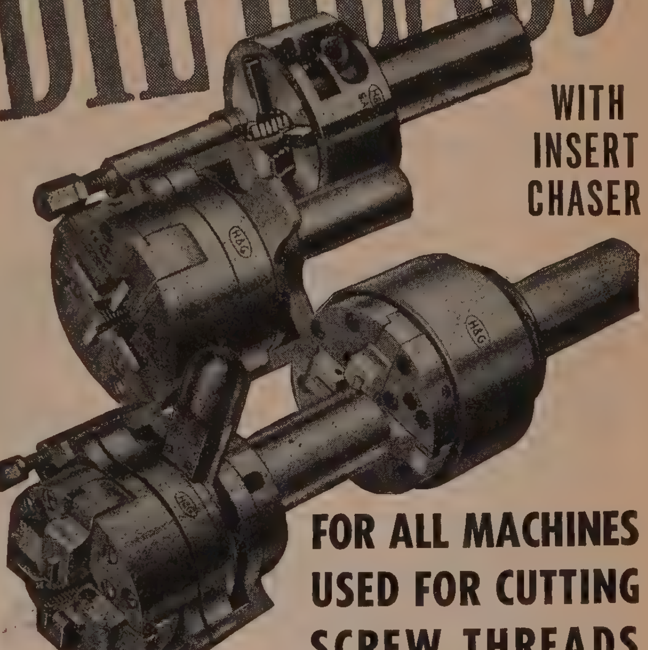

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The reduction in inventory will pay for new die heads. **For example:** If you have $1,000 in chaser inventory, changing to H & G will require only $300, setting free $700 for the purchase of new H & G heads. This is due not only to low cost of chasers, but to interchangeability and long life.

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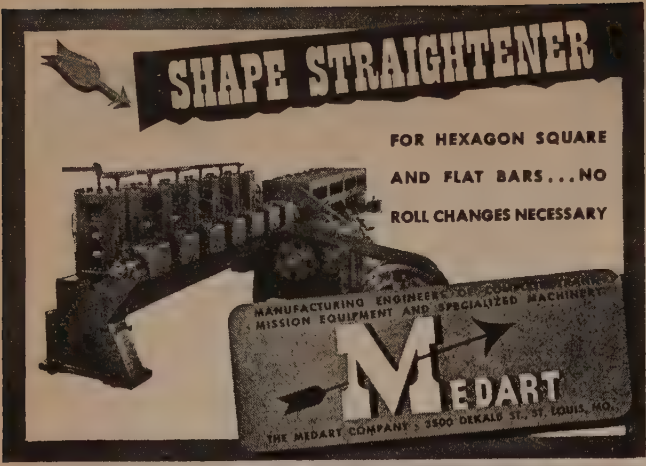
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Consumption of Lake Superior Ores Up

Cleveland

• • • **Consumption of Lake Superior** iron ore b United States and Canadian furnaces totaled 6,965,392 gross tons in September, as compared with 7,036,135 gross tons in August and 6,491,937 gross tons in September 1947, according to the monthly report of th Lake Superior Iron Ore Assn.

Cumulative consumption of Lake Superior iron or this year to date is 58,822,093, as compared wit 59,516,825 for the corresponding period of 1947.

Iron ore stocks on hand Oct. 1 at Lake Erie dock and furnace yards totaled 40,923,499 as compared wit 37,080,989 Sept. 1 and 38,369,549 Oct. 1, 1947.

Active blast furnaces depending principally on Lak Superior iron ore numbered 170 U. S. and nin Canadian, with 14 U. S. and one Canadian furnace idle.

Sources in the iron ore trade are predicting tha the total 1948 all-lake movement will reach 82,000,00 gross tons. In addition, it is believed the all-rai movement this year will approximate 1,500,000, making a total season's movement of 83,500,000 gross tons Such estimates assume that about 11 million gros tons will move all-lake before the closing of navigation on the Great Lakes and about 500,000 gross ton all-rail this winter.

At the present rate of consumption, an 83,500,00 ton season movement will leave steelmakers in goo shape next spring with about 18,000,000 gross ton of iron ore on hand.

Engineering Construction Up 30 Pct

New York

• • • **F. W. Dodge Corp.** has reported that buildin and heavy engineering construction is at a level 30 p higher than a year ago on the basis of dollar valuatio of contract commitments reported for the 37 state east of the Rocky Mountains during the first thre quarters of the year.

A spokesman for the fact-finding organization sai that the record is being established principally because of gains in non-commercial building contracts—educational buildings, hospitals, religious, social an recreational structures, held up during and immediately after the war by the priorities system in force.

Contributing also to the upward trend was the striking increase in investments for single family dwellings built to owners' orders—another classification o building which was largely a priorities-syste casualty.

Contracts for buildings used for manufacturin purposes showed a 4 pct decline compared with th volume reported for the first three quarters of las year. However, in the processing industrial group, th plant expansion of printing and allied industries wa up almost 100 pct from last year's comparative tota with contracts in the first 9 months amounting to $3 million. Lumber and woodworking buildings, as indicated by contracts awarded, also showed substanti gains with a total volume of $20.4 million in the fir three quarters. The mechanical industries as a grou showed an increase of 2 pct against an 8 pct loss i the processing industries.

A summary of building and engineering contrac awarded during the first 9 months in the states ea

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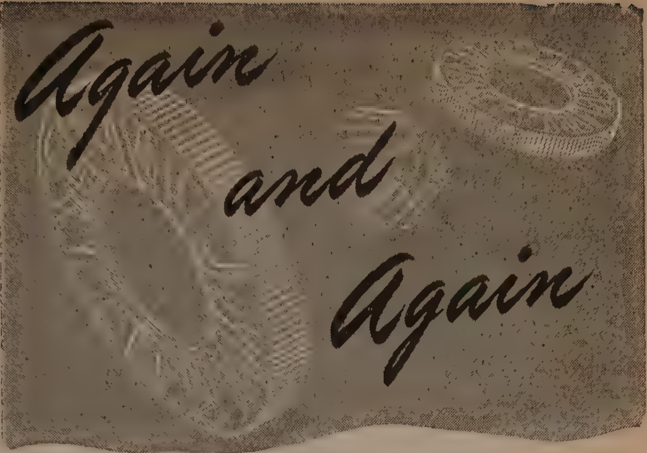

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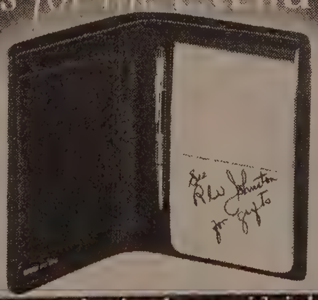

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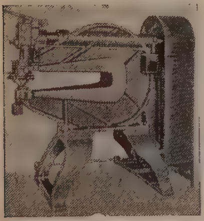
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of the Rockies showed a total of $7,345,773,000 compared to $5,626,111,000 during the corresponding three quarters of last year.

The 15 major reporting regions in the Dodge network showed increases in contract volume over the corresponding nine months of last year with upstate New York and the 5-state area surrounding Chicago showing the greatst gains over last year. Thirteen of the 15 regions continued to show increases in September over the corresponding month of last year, with slight breaks away from an upward trend being reported for metropolitan New York and northern New Jersey and the region comprised of eastern Missouri, southern Illinois, western Tennessee and Arkansas.

The over-all increase in nonresidential building awards in the 37 states was 46 pct with a 9-month total of $2,843,379,000, while residential contracts totaling $2,790,476,000 reflected a 22 pct gain over last year. Heavy engineering awards for bridges, highways, other public works and utilities advanced to a total of $1,711,918,000 to show a gain of 23 pct.

A breakdown by ownership of projects included in contracts awarded in the first three quarters of the year shows 32 pct of the total investment is for buildings and public works and utilities classified as publicly owned. Twenty-nine pct, by dollar volume, of nonresidential awards, and 3 pct of residential awards, were for public ownership accounts, while 85 pct of the public works and utilities projects were classified as publicly owned.

LRI Campaigns for More Productivity

New York

• • • **The Labor Relations** Institute is going to start a nationwide campaign among its members to increase productivity by 10 pct. The idea was originated by Charles Luckman.

Over 7500 plants throughout the country will ask their workers to join in an effort to increase productivity and thereby help curtail rising prices. Whatever profits accrue to management from this cooperative effort will be reflected in reduced prices and increased wages in direct proportion to the percentage of increase in production.

Preliminary to the completion of plans for this drive, the Labor Relations Institute conducted a survey among employees in a cross section of industries to determine the extent of cooperation to be expected. Ola C. Cool, director of the institute, reports the survey clearly showed that employees were more than willing to cooperate once they were apprised of the benefits that would result to themselves and to the nation.

"We believe that increased production will tend to hold the line or actually reduce prices, create a greater supply of scarce items and, finally, help our nation to remobilize without burdening civilian supplies appreciably. This is the high purpose of the program," says Mr. Cool.

Every employee will receive a personal letter from the president of his company asking for his cooperation. The plan calls for the use of bulletin boards, graphs depicting production progress, inter-department contests and the distribution among employees of Yourself, an employee relations bulletin designed to inform employees of the economic benefits resulting from the campaign.

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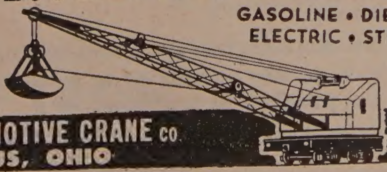

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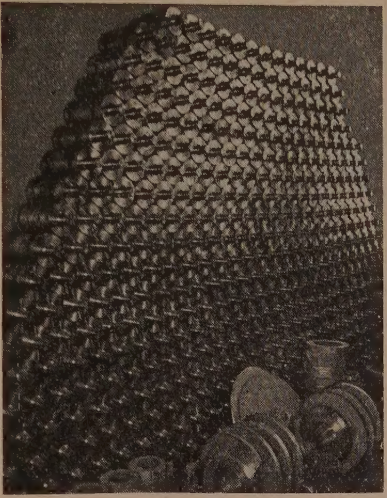

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Gray Iron Specifications Summarized

Cleveland

• • • **Charles O. Burgess,** technical director, Gray Iron Founders' Society, Inc., recently announced the release of a summary of gray iron specifications.

The 4-pg bulletin contains a resume of 14 separate sets of gray iron specifications covering automotive, high pressure, high temperature, alloy, railroad, pipe, pipe fittings and general castings. Specifying authorities include American Society for Testing Materials, Society of Automotive Engineers, American Standards Assn., American Assn. of Railroads, Army, Navy, federal government, American Transit Assn. and others.

Prepared under the guidance of the society's technical and specifications committees, the summary covers only gray iron specifications promulgated by universally recognized, specifying bodies.

The summary is expected to be useful to designers as a guide in the proper selection of iron for specific application. Foundries should also find it helpful in producing castings to desired specifications.

Copies of the summary are available at no charge from Gray Iron Founders' Society, 210 National City Bank Bldg., Cleveland 14.

British Steel Output Near Peak

London

• • • **British steel** production in September reached an annual rate of 15,435,000 long tons, which was almost on a level with the alltime high of 15,444,000 tons achieved in June 1947.

Output in September which was the first full month after the holiday period was well above the previous best September 1947, when the annual rate was 13,841,000 tons.

As a result of holidays, production in July 1948, had fallen back to a rate of 12,084,000 tons, but rose again to 14,117,000 tons in August. This operating rate indicates that steel production is running well above the revised government target of 14,500,000 tons per annum.

Pig iron production was also running higher in September at an annual rate of 9,407,000 tons as compared with 9,048,000 tons in August and 7,805,000 tons a year ago.

New Process Control for Super Alloys

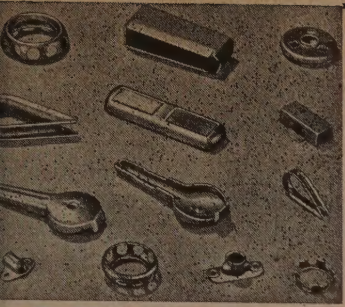
Detroit

• • • **A new process control** in the manufacture of a high temperature alloy for turbine driven engines has been reported to the Optical Society of America by General Motors Research Laboratories.

The control method employs the emission spectrograph, used also in casting control of other metals. It was developed within 3 days after the problem of analyzing the cobalt-base alloy, commercially known as Vitallium, was submitted to the laboratories, the report said.

The method has progressed to the point where analyses can be completed in a matter of minutes during the production process.

In addition to cobalt, other elements in Vitallium



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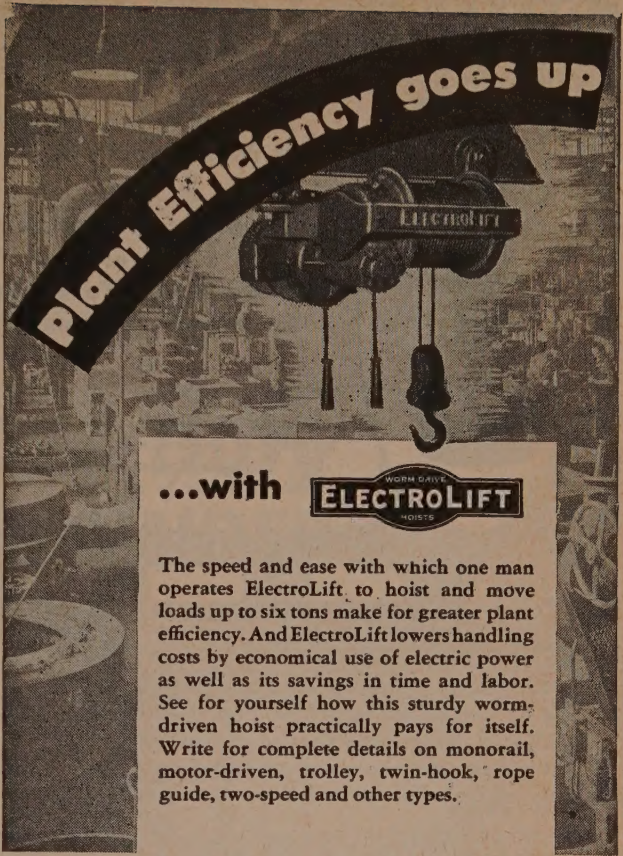

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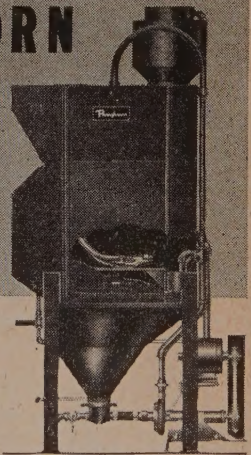

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include molybdenum, manganese, iron, chromium, silicon and nickel. It is used in turbine rotors which revolve at high speeds under red-hot temperature conditions.

Samples of the alloy are analyzed from a photographic record of a line spectrum taken from an arc flame burning on an electrode. The Vitallium sample to be analyzed forms one of the electrodes and carbon is used in the other.

From the density of the spectrum lines on the photographic film, physicists can determine the percentage or quantity of the various elements in the alloy and make immediate corrections in the molten metal.

The report was presented by Y. T. Sihvonen, who collaborated in the development with David L. Fry, R. E. Nusbaum, now with North American Aviation, and R. R. Baumgartner, now at Redford, Mich., high school.

Formerly the content of Vitallium could be determined by chemical processes. Although these were accurate, they consumed valuable time in production control. A check of both chemical and spectrographic analyses, Mr. Sihvonen said, showed agreement so far as accuracy of results were concerned.

Sees Private Enterprise On Death Bed

Boston

• • • **Industrial taxation** is tolling the death knell of private enterprise, according to James D. Mooney, president and board chairman of Willys-Overland.

Speaking at the annual meeting of the Associated Industries of Massachusetts, Mr. Mooney declared that "from the standpoint of management, it is practically impossible to operate an industrial property when you have a preferred creditor who takes 38 pct right out of the cash drawer continually.

"Unless there is a reversal in the trend of taxation and unless the heavy hand of taxation is lifted on industry, we shall continue rapidly toward a very unpleasant crisis in the affairs of American industry.

"Industrial management is faced with a tough dilemma because of Federal tax rates that are too high," he told the audience of New England businessmen. "A moderate recession will put you into extraordinary difficulties because of high cash break-even points; a continuing boom will cause you painful headaches searching for cash in the form of bank loans to sustain your expanded volume."

Beyond the 38 pct tax exacted by the federal government before corporate earnings are available for distribution to stockholders, the suppliers of capital are taxed so heavily on their dividends that it is no longer possible to interest capital broadly in industrial ventures, Mooney asserted.

"If you want practical proof of this," he added, "observe the present ridiculous prices of industrial stocks on the New York Stock Exchange. These low prices are caused principally by the fact that venture capital will no longer take the risks in industry in the face of these double and confiscatory taxes.

"It is time for us to undertake such economic education as will make it possible, once the new administration takes charge of the country at Washington, to place the facts before Washington and before the public, so that we can get ready to arrest any further drift toward collectivism," he concluded.